VOL. I

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EXHIBITS 1399-1406

SUPERIOR COURT OF THE STATE OF WASHINGTON
FOR KING COUNTY

STATE OF WASHINGTON, Plaintiff	)	
vs	)	No. 96-2-15056-8 SEA
AMERICAN TOBACCO CO., INC., et al., Defendants	)	

DEPOSITION OF W. KIP VISCUSI, taken on behalf of the plaintiff, pursuant to the applicable provisions of the Washington Rules of Civil Procedure, before Kathleen L. McCarthy, Registered Professional Reporter, Notary Public in and for the Commonwealth of Massachusetts, at the John W. McCormack Building, One Ashburton Place, 19th Floor, Choate Room, Boston, Massachusetts, on Wednesday, August 26, 1998, commencing at 9:30 a.m.

APPEARANCES:

NESS, MOTLEY, LOADHOLT, RICHARDSON & POOLE

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I N D E X

Exhibits (premarked)

No. 1399	Expert statement of W. Kip Viscusi
No. 1400	Curriculum vitae of W. Kip Viscusi
No. 1401	"Survey about Smoking," Audits & Surveys, September 1985
No. 1402	"Attitudes Toward Smoking," Audits & Surveys, February 1997
No. 1403	Fax, 1/29/97
No. 1404	"Smoking, Making the Risky Decision," W. Kip Viscusi
No. 1405	"Cigarette Taxation and the Social Consequences of Smoking," W. Kip Viscusi
No. 1406	"Total State of Washington Taxes"

W. KIP VISCUSI, a witness called on behalf of the plaintiff, first having been duly sworn, on oath deposes and says as follows:

EXAMINATION BY MR. GRUENLOH:

Q. Doctor Viscusi, we met prior to the deposition. I'm Mike Gruenloh with the firm of

Ness, Motley in Charleston, South Carolina, and I represent the State of Washington in this case. I understand that you have been deposed many times before, including four attorney general actions prior to this one; is that correct?

A. That's correct.

Q. What actions were those? What cases were those?

A. Mississippi, Florida, Minnesota and Texas.

Q. That's it? No others?

A. No other state cases.

Q. I think I have read all those depositions, so to the extent I can, I will try to stay away from material that we you already covered, but bear with me. A lot of this is going to be old to you, I'm afraid.

A. Good.

Q. We will try to keep it as new as possible. It's not my intention to try and trick you or deceive you with any of my questions. This is a discovery deposition. I am here to find out what your opinions are, so it does me no good to try to deceive you with my questions. If any of my questions are ambiguous or you don't understand, let me know and I will go back over the question.

Your counsel today is entitled to make objections to the form of my questions. You are going to need to answer my questions, regardless of those objections. So do your best to listen to my question because you are going to have to answer unless counsel directs you not to answer the question. If you need a break at any time, let me know, because I want you to be comfortable. Okay?

A. Okay.

Q. Any questions?

A. No.

Q. Can you state your full name for the record?

A. William Kip Viscusi. The W stands for

William.

Q. Is Kip short for something?

A. I was born on Yom Kippur, and that's how I picked up Kip.

Q. Do you still teach at Harvard?

A. Yes.

Q. Is it Harvard Law School?

A. Yes.

Q. What courses do you teach there?

A. The economics of regulation and antitrust, empirical analysis for lawyers. I forget the exact title. Risk and environmental

regulation, and treatment of scientific evidence in the courts.

Q. So that's four courses?

A. Two courses, two seminars.

Q. Can you just tell me briefly the subject matter that you cover? Start with the first one.

A. Regulation and antitrust would cover the objectives of government regulation. I do risk and environmental regulation, antitrust, economics of regulation, utility regulation, so the whole sweep of all government regulations.

The empirical analysis course is

essentially statistical and econometric methods for use by lawyers.

Q. Econometrics for use by lawyers?

A. Well, in the courtroom you may have statistical analyses that use econometrics, how would you judge such analyses, and in the class many times they actually prepare papers using econometrics.

Q. And the third?

A. Risk and environmental regulations focuses on health, safety and environmental regulation by the federal government, such as job safety regulation, environmental regulation. And the fourth course, judging scientific evidence focuses primarily on how

risk issues are treated in the courts and in the government regulatory context, everything from breast implants to auto safety. And cigarette smoking shows up in all four courses.

Q. You said the fourth deals with risk?

A. Right. Well. Judging risk, whereas all of them deal with risk to some extent. It shows up in all of my courses.

Q. But more so in the fourth?

A. The one called risk and environmental

regulation is right on target, as well.

Q. Tell me again what subjects do you -- you mentioned the EPA. What else do you cover in that fourth course?

A. Judging treatment of scientific evidence.

Q. The risk course?

A. Risk and environmental regulation.

Q. Risk and environmental?

A. That would include risk analysis, risk perception, market poll procedures that handle risk, how consumers make decisions with respect to risk, the value of life, government regulation of risk, the performance of government risk regulations. And then substantively everything from hazardous waste sites to food safety to highway safety. It's a

broad coverage within that set of topics.

Q. On the second course that you told me about, the one dealing with econometrics, do you have a course outline on that?

A. I have a course reading list, yes.

Q. Is that something that you could provide to us, or have you? That's two questions. Have you provided it to us?

A. I provided it in some cases. I'm not sure which ones. But that's something that can be provided.

MR. GRUENLOH: I don't remember getting that, Tim. Can you check on that?

THE WITNESS: I'm not sure I gave -- nobody has asked me for it recently.

Q. The econometrics course, I would like to look at that course outline, if you could get that for us.

A. Sure.

MR. ATKESON: Sure.

Q. Does that course on econometrics involve smoking at all?

A. Yes.

Q. How so?

A. As part of the statistical analysis, I also present "The Social Consequences of Cigarette Smoking" article. I also talk about the risk perception analysis that I have done.

So not everything I do in the course shows up in the reading list, but that's part of what I do.

Q. How long have you been teaching at Harvard?

A. Well, I have had a permanent position

there for two years. Before that I was a visiting professor for one semester, and back, way back, I was an instructor. But that's before I completed my Ph.D.

Q. After you completed your Ph.D., how many years have you been teaching at Harvard?

A. Two years permanently, plus another semester. So I'm starting the third full year in September.

Q. Have you taught other courses besides the ones you are teaching right now at Harvard?

A. No.

Q. These are the four that you have stayed with for your entire time at Harvard Law School?

A. Right, that's correct.

Q. You received all of your academic degrees from Harvard; is that correct?

A. That's correct.

Q. Can you tell me briefly what those are?

A. Bachelor's degree in economics, a master's in public policy, master's in economics, a Ph.D. in economics.

Q. After you got your Ph.D., what was your

first teaching job?

A. Northwestern.

Q. What did you teach there?

A. Economics.

Q. What year was that?

A. 1976.

Q. Anything else besides economics?

A. No. I was in the economics department, so I taught lots of different economics courses.

Q. You can't remember what they were?

A. One was labor economics, undergraduate. One was labor economics, graduate. I also taught a public policy analysis class. I'm not sure what else. When I came back to Northwestern later, I taught statute law and economics, but that was my second stint there.

Q. When was that?

A. Around 1985.

Q. How long were you at Northwestern the first time, 1976 until when?

A. I went on leave to work for the federal government in 1979, the fall of 1979.

Q. And what did you do there? For what branch of the government did you work?

A. The Executive Office of the President. So I was the deputy director of the President's

Council on Wage and Price Stability.

Q. How long did you work there?

A. Until President Reagan became president in January 1991.

MR. ATKESON: '81.

A. I'm sorry. Time flies.

Q. After that, what did you do?

A. I spent the spring semester and the summer as a research associate of the National Commission for Employment Policy, and then that fall I went to Duke University as a professor, housed primarily in the business school, but I also ran a regulations center and had joint appointments in a number of other places there.

Q. What year was that?

A. I would guess 1981.

Q. 1981 till when were you at Duke?

A. I would have to look this up, but I think around 1985, roughly, I went to live in Chicago, and I was a visiting professor at the University of Chicago. But at the same time I was signed on as a full professor at the Northwestern economics department.

Q. What did you teach at Duke?

A. That was Northwestern.

Q. Back at Duke, what did you teach at Duke?

A. Back at Duke I was teaching regulation and microeconomics, and I'm not sure what else. Public policy, one semester I taught public policy analysis for the public policy school there. Another semester I taught in the medical school. They had -- I taught a course on health -- their health administration program.

Q. Do you consider yourself a public policy analyst?

A. I have done public policy analysis and have a degree in it. I consider myself more a professor rather than a staff person in an agency.

Q. If someone asked you if you were qualified to be a public policy analyst, say, for instance, on a staff of some government board, what would your answer be?

A. It depends on the policy context. I'm not going to analyze whether we should bomb Sudan. But domestic policy is the kind of thing that we did for the Carter administration as part of my job.

Q. So it's important to have knowledge of

the subject matter of the policy before you can

become a policy analyst in that subject?

MR. ATKESON: Are you asking generally?

MR. GRUENLOH: Yes.

A. It depends on the context. If you are talking about judging, well, let's say a statistical analysis of, let's say, the bombing in Sudan, I could judge statistical work. But if you are asking me to second-guess the factual underpinnings of the analysis, I wouldn't second-guess the factual underpinnings unless I knew something about the area.

Q. Well, you just said, if somebody came to you and asked you to be a policy analyst on bombing in Sudan, you wouldn't consider yourself qualified to do that. Isn't that what you said?

A. I wouldn't want to do it because generally when I do things, if I were to be working for the agency, I would want to actually learn something about the subject matter area of it. If I'm going to do an analysis from start to finish, I want to know something about the area.

Q. What did you do after Duke?

A. Which time?

Q. After '85.

A. That's when I went to the University of Chicago and Northwestern.

Q. University of Chicago first?

A. Chicago for a one-year visit, and at the same time I was concurrently a professor at Northwestern.

Q. What did you teach at the University of Chicago?

A. Nothing. It was straight research.

Q. What was your research in?

A. Risk, hazard warning, similar kinds of things.

Q. Risk generally, or the risk of smoking?

A. I started worrying about smoking at that time, but mostly I was doing hazard-warning work.

Q. For the EPA?

A. For the EPA.

Q. Tell me again what year that was.

A. 1985 to '86.

Q. Is that when you started working in the area of risk perception of smoking, or was it after that?

A. Well, that's when I started thinking that that should be a -- well, it may even be before I read the Shelling work, before that, but Becker was doing smoking at the University of Chicago, so smoking was in the air as being a hot topic. So that's when at least I started

thinking about it more seriously than I had in the past.

Q. Tell me about those two, the Shelling and Becker work.

A. Shelling was a professor at Harvard and he had done work on smoking and self-control.

Q. Was it in a book or an article or --

A. It was an article that eventually showed up in his book, but it was circulating fairly widely as a working paper at Harvard.

Q. Do you remember the name of the article?

A. It may have been something like, "The Battle for Self-Control," something like that.

Q. What about the book?

A. His book?

Q. Yes.

A. The one that came after -- it's the one that came after "Micromotives and

Macrobehavior," but I don't recall the name of the book.

Q. What about Becker?

A. He worked on rational addiction to cigarettes.

Q. And was it some particular book or article that you read of his that made you want to go into the field?

A. Well, his work was ultimately

published. I think it's called "The Theory of Rational Addiction." Earlier work before than with Stigler, whose center I was visiting, touched on those sorts of issues. And I got involved largely because nobody seemed to be looking at risk issues, so the risk aspect was being ignored.

Q. The risk aspect?

A. Of smoking.

Q. All right. I need to find out in which areas you are going to offer opinions and which areas you are qualified to offer opinions in. This might be a little tedious, but bear with me. I just want to ask you some questions and you tell me the answers.

Are you a physician?

A. No.

Q. So you are not qualified to give a medical opinion?

A. No.

Q. Are you a toxicologist?

A. No.

Q. Do you consider yourself an expert in toxicology?

A. No.

Q. You are not an epidemiologist?

A. No.

Q. Are you a psychologist?
A. No.
Q. Do you consider yourself an expert in psychology?
A. It depends on what you define to be the scope of psychology.
Q. What do you define the scope of psychology to be?
A. Well, if you are asking, can I look at questions that psychologists look at, some questions, the answer is yes, in that I look at some things psychologists also look at.
Q. Do you offer your services as a psychologist?

A. Am I a practicing psychologist? No.
Q. Have you taught courses in psychology?
A. I teach courses in risk analysis, which involves interdisciplinary work. I run an interdisciplinary journal that includes psychology.
Q. What about specifically psychology, psychology 101?
A. No, I don't teach psychology, courses in the psychology department.
Q. Have you written in the area of psychology?
A. I have written work about risk perception, and some psychologists write on the

same topic. I have written or done projects with psychologists, so there's a lot of overlap.

Q. I understand there's a lot of overlap with your field of risk perception and a lot of other fields, but what I'm asking is specifically psychology. Have you ever written specifically on psychology as the focus of some article, book or research?

A. If you would call how people perceive risk as psychology, I have written about that.

Q. Do you think it is?

A. No, I think it's, risk perception is fair game for economics. I mean it's been central to economics for centuries.

Q. Not psychology?

A. And psychologists worry about it, too.

Q. Do you intend to offer an opinion in this case in the field of epidemiology?

A. No.

Q. What about health care in general? Do you consider yourself an expert in health care?

A. Not in providing health care. I have done work analyzing health price inflation. I directed the health price inflation report for the Carter White House, so I have done some work in health care.

Q. Have you written specifically in health

care?

A. Well, I have published in the Journal of Health Economics, which is the major health journal.

Q. What was the title of that article?

A. It's on my vita. I don't remember.

Q. Was the subject related to health care, or was it health care specifically?

A. It was probably dealing with health

risk regulation.

Q. Do you consider yourself a health care economist?

A. I am always invited to the National Bureau of Economic Research health meetings, but I do health and safety risks primarily, as opposed to worrying about Medicaid reimbursement formulas, although I have a book on Social Security and Medicare.

Q. Do you consider yourself an expert in economics?

A. Yes. Not everything in economics, but given what I do, yes.

Q. Now, you don't have any formal legal training, do you?

A. No.

Q. You are not a lawyer?

A. No.

Q. Did you consider yourself an expert in

the law?

A. No, in the sense of practicing law. I have never practiced law.

Q. But you have taught courses in the law?

A. I hold a professorship in the law school, and I teach judges.

Q. And you have published in product liability?

A. Yes, I have.

Q. So that part of the law, at least, you have knowledge of?

A. As -- my knowledge is as an economist. I'm not going to give you a legal ruling or start interpreting what the laws mean.

Q. What about survey design? Do you consider yourself an expert in survey design?

A. In terms of the drafting of the survey questions, that aspect of survey design, yes. But I'm not a sampling person.

Q. Have you ever offered your services specifically for design of a survey?

A. Yes.

Q. Tell me when.

A. I have been doing this almost annually for the past 14 years for the US EPA.

Q. Tell me what was involved in that.

A. I have a survey we ran in the field

this past year, it involves figuring out what questions you want to address in the survey, then it involves the design of the survey, pretesting the survey. You may run focus groups

before that, depending on context. Then we are doing a large series of pilots in North Carolina and Colorado, and based on the pilots, we are going to design a national survey.

Q. Have you written in survey design? Is that a field?

A. People do write about that. I have written about how you would approach valuations issues in survey context, so we have done innovative things in that area. We were the first people to use paired comparisons to elicit tradeoffs. We are in the forefront in using interactive computer program surveys. So to that extent, yes, but in terms of survey design theory, no. As in, generally, abstract survey design, no.

Q. What is survey design theory?

A. If you are going to write something like, well, whether you should also put demographic questions here in a survey or something like that, that would generically apply to any survey, I have not written on that.

Q. The format of the survey, the way

questions are ordered?

A. We have done a lot of testing whether order affects matter, as well, so whether putting things in pairwise comparisons on the left or right affects our valuations.

Q. Have you written specifically on that?

A. Yes, it's part of our reports to government agencies.

Q. What reports were those?

A. Well, we have one report that we just made this year on water. So that that was done, how people value water quality, how people value ambiguous risks. We did a report for that a few years ago. We've got the two books, the Harvard Press book and MIT Press book, which are compendiums of two of our chemical-labelling surveys that we did for EPA.

We have our chronic bronchitis work, our nerve disease work, cancer surveys. All these are separate surveys, and the results of these surveys are -- some of the results are published and are listed on my vita.

Q. And all of these are specifically on the subject of the theoretical survey design?

A. No, all of these things are on valuation issues for EPA, but as part of that,

because people have never confronted these issues before, we did develop new survey approaches to elicit these things. So the use -- you have pairwise comparisons with multi-attribute tradeoffs, and we developed what we think is a novel technique for eliciting a sequence of responses in surveys in terms of tradeoffs, to construct people's preferences, and to analyze people's preferences. That's part of our new survey that we just completed.

Q. That's interesting, but remember what I asked. I understand that your work overlaps with a lot of other areas, but I am asking if you have specifically published in the area of survey design. I understand that some of the work that you have done may have touched upon that, but have you published specifically on survey design? Did you write an article that the focus of it was survey design?

MR. ATKESON: He testified about reports he submitted to the agencies. Asked and answered.

A. That's my answer. When I write about survey design, it's been in the context of the specific issues that I am analyzing. So that

when we write about survey design, how would you develop a survey to elicit complex preferences for water quality over multiple attributes. So we have written about that. And the way I would approach it, rather than sitting back and saying, "how would I design a survey" independent of the subject matter you are interested in, all my survey design work deals with specific subject matter.

Q. Again, that's very interesting, but I'm going to move to strike as nonresponsive. Have you written specifically in the area of survey design?

MR. ATKESON: Asked and answered.

A. I have answered. We can read back my answer, but I'm not going to change the answer. I have answered. I will stay with that. I have written about survey design as part of my work.

Q. As part of your work. Okay. What about statistics? Do you consider yourself an expert in statistics?

A. Insofar as it's used by economists, but I do not teach in a statistics department. I have never sought a job in the statistics department.

Q. Okay.

Q. Have you -- do you intend to offer an opinion in this case on statistics?

A. My work involves statistical analysis, so to that extent, yes.

Q. What about econometrics? Do you consider yourself an expert in econometrics?

A. I consider myself an applied econometrician, not an econometric theorist.

Q. What does that mean?

A. I mean I'm not going to invent a new estimator, but I use econometrics as part of my work, and I review econometric publications for journals.

Q. Have you ever been retained specifically as an econometrician?

A. Well, my work in the DES litigation was solely statistical and econometric. I had no knowledge of DES or about pharmaceuticals to any great extent at that point.

Q. Which journals and publications on econometrics have you reviewed?

A. I am the reviewer for these journals, so I am on the editorial board of the Review of Economics and Statistics, which is Harvard

University's econometrics journal. Editorial board of the American Economic Review, the American Economic Association's main journal; I review only econometric papers. I am on the editorial board of a number of other journals

listed on my vita, where my sole primary reviewing responsibility is in the econometric area, as opposed to the theory area.

Q. What about behavioral science? Are you an expert in behavioral science?

A. I am not a behavioral scientist, but economists worry about how people make decisions, and to the extent that that's behavior, I am an expert in it, to the extent that economists worry about behavior.

Q. You are telling me that your field overlaps with behavioral science, but you are not specifically a behavioral scientist; is that it?

A. Economists study the human behavior involved in economic decisions, and that aspect of it is what I do.

Q. Have you ever been a reviewer on any econometric work in the field of smoking or health care costs?

A. Yes.

Q. What work was that?

A. US EPA, I was a reviewer for their environmental tobacco smoke study. And I also review for the American Economic Review and other journals. I have been the reviewer for econometric articles dealing with smoking.

Q. The reviews that you did for the EPA

that you just talked about, are those available, publicly available?

A. I know people have requested them, and EPA refused to release them.

Q. Do you know why?

A. Because they are private reviews prepared for the agency.

Q. Have those been provided to us?

A. I don't have them. I can't provide them to you.

Q. Do you consider yourself an expert in pharmacology?

A. No.

Q. What about policy analysis?

MR. ATKESON: Objection. Asked and answered. Same objection.

A. I have taught at the Kennedy School,

which is the public policy school, and I have taught public policy at Duke.

Q. So you do consider yourself a policy analyst?

A. I consider myself able to teach policy analysis.

Q. What have you done to prepare for your testimony in this case?

A. I reviewed some of my articles and ran some statistical work, and over the course of

time I have looked at just some papers in the literature, as well as the statistics on excise taxes.

Q. Have you reviewed any depositions of any experts?

A. No.

Q. Have you reviewed any depositions of anyone?

A. No.

Q. Did you review any of the expert reports for any of the defense experts or the plaintiff's experts in this case?

A. No.

Q. In any other case?

A. No.

Q. You have never reviewed any of them?

A. Not for this deposition.

Q. What about for other depositions, for other AG litigation?

A. I have seen some expert reports, and I have read some.

Q. Which ones have you seen?

A. I have seen some work by Jeffrey Harris. I'm not sure what, or in what connection -- whether it was an AG case or something else.

Q. How did you get it?

A. I was sent it by lawyers. I think this

was just -- not these people. Some other lawyers, for other matters.

Q. What other matters? Was it an attorney general case, I assume?

A. It was just dealing with the whole policy issue regarding the national agreement. So they just sent me Jeffrey Harris's analysis of the national agreement.

Q. So you did work for lawyers regarding the national agreement?

A. I looked at the Harris things, but I never ended up doing any work for them.

Q. Now this -- you never provided an opinion to them?

A. No opinion, no written report.

Q. Did you provide any details on the settlement to anyone?

MR. ATKESON: Details? What do you mean?

Q. Oral comments. You said you didn't provide a written opinion?

A. The proposed settlement was announced before I knew anything about it, so I was not involved in anything that led up to it. I'm not sure what the question you are asking is.

Q. The question I'm asking, you said you were provided the report or something of Doctor

Harris's to review in regard to the national settlement, and I want to know, did you get back to the lawyers that provided you that information?

A. I think I may have kicked out some other numbers regarding the present value of the settlement, the annual payments at different interest rates, but that's about it. I don't think I did much more.

Q. Was that in written form?

MR. LEITER: Let's stop there. We are now far off of the Washington case. If you are going to question him about the national settlement, which is not part of the Washington case, we are going to instruct him not to answer. That's not at all relevant here, and I don't think those are appropriate questions. So I would suggest that you move on to issues that are relevant to this case.

MR. GRUENLOH: I think it may be relevant because I'm trying to find out what reports he has done, what reports he has reviewed, and the context in which he reviewed those reports.

(Witness conferred with counsel.)

MR. ATKESON: If you look at the

Brookings review article, you will see his views on the national settlement.

Q. So the Brookings review is the result of your work with the lawyers on the national settlement?

A. No, they didn't pay for it. I looked at the thing, the national settlement. We never

-- nothing seemed to happen on that.

I wasn't doing anything or requested to do anything for them. Brookings called me up and said, "We want an article on the national settlement." I quickly wrote the article and sent it in, so it was not supported by anybody.

MR. ATKESON: And you have got copies of that.

Q. You don't remember the names of the lawyers that you talked to about the national settlement?

MR. ATKESON: That's privileged.

Q. Did you ever -- did you have any conversations or correspondence with anyone prior to this deposition to prepare for this deposition?

A. Correspondence? No.

Q. Conversations?

A. Yes, yesterday we had a brief meeting.

Q. With who?

A. The trio of people here.
Q. Okay. What did you discuss in that meeting?
A. Mostly, they just wanted to know what the scope of my opinion was, or the nature of my

opinion was, on different topics.
Q. And you said there was no correspondence, no written correspondence?
A. I did not write anything either way.
MR. ATKESON: He has been -- I faxed him two things. One is the address where this deposition was going to take place, and I faxed him the excise tax sheet, which I think you have marked as one of the exhibits to come up later today.
Q. What about in preparation for your testimony in this case? Not just this deposition now. I'm not restricting it just to this deposition. Have you had any correspondence with any of the lawyers regarding this case?
A. No.
Q. Okay. Have you talked to any other lawyers besides the three that are in this room right now about this case?
A. No.
Q. Did you do anything else to prepare for your testimony in this case?

A. No, just reviewing articles, and that's about it. I mentioned before some statistical

work. But that's all.

Q. We will get to that in a little bit. Now, the state is entitled to receive all of your work papers, all of your notes, everything that you are relying upon in this case, everything that -- your file, so to speak, in this case. Have you done a thorough search, and has that all been provided to counsel?

A. That's why I provided this paper.

Q. And that paper is -- that's the new paper. Okay. Everything else that you are relying upon has been provided?

A. It depends on where it goes in terms of how people respond to me. But everything that I would use, assuming there's nobody on the other side, you have got.

Q. Can you describe that paper for me?

A. This paper is a summary of my smoking risk perception work.

Q. And what are its findings?

A. People overestimate the risks of smoking.

Q. Is there any new material that you use to base your opinions on in that paper?

A. Well, there's more detailed analysis of

the 1997 Audits & Surveys data so that I could both independently verify the Audits & Surveys results as well as, you know, explore their sensitivity.

Q. I would like the record to reflect that we are just seeing this survey today. And I understand you told me it contains nothing new?

MR. ATKESON: The record reflects that you received the paper today. The survey you received many months ago. And you have all the original data as well.

MR. GRUENLOH: We have not had a chance to review it. You're telling me it's nothing new.

MR. ATKESON: It was presented, if you look at the date, within the last week, so this is as new as it gets. He gave it to us and we are giving it to you, and all there is is some more detail and refinement. There are no new conclusions.

MR. GRUENLOH: I would preserve our right to go back at a later time for if in fact there is new material in there.

MR. ATKESON: As you wish.

Q. You were retained by the attorneys in

the Minnesota Attorney General case by the defendants; is that correct?

A. Yes.

Q. Now, in that case -- help me out, because you were there, and probably know more about the details than I do. In that case, there was a problem. Your opinion was ultimately excluded there; correct?

A. No, I never was -- I never set foot in the courtroom. I was never offered to testify.

Q. Do you know anything about the information that was provided to the Minnesota counsel in that case?

MR. ATKESON: What information?

Q. The information upon which you relied to form your opinions.

MR. ATKESON: It's all the same as in this case. There's nothing new. You have got it all except if he has written a new paper.

Q. Let me ask you this. The information that you provided to the defense attorneys in the Minnesota case, that's exactly what you have provided here in this case, aside from this paper?

A. Well, there was a lot of late

scrambling that went on, giving the Minnesota

people the raw Audits & Surveys data.

MR. ATKESON: But we turned that over to them.

A. (continued) Since you have the raw data, you have everything that we turned over, as far as I know.

MR. ATKESON: And the same is true for Texas, Florida, Mississippi.

Q. There's three surveys; correct?

A. Two Audits & Surveys surveys, plus my own.

Q. Okay. And all of those have been provided, as well as the raw data for all three of those?

A. You don't have the raw data for my North Carolina survey.

Q. Why not?

A. I don't think I have it anymore.

MR. ATKESON: Everything that still exists in raw data, you have.

Q. Why don't you have it anymore? Did you destroy it?

A. I didn't destroy it. I moved, and when you move, you don't take everything with you.

As it is, I have got lots of things in storage. So if I have it, I don't know where it is.

Q. I'm kind of curious. In your Florida deposition you were asked if your, what I call

your early death analysis, your lifetime analysis regarding the nursing home costs and the savings to the state, you were asked if your opinion there concedes causation. And you answered yes.

Is that still your opinion?

MR. ATKESON: Do you have the deposition?

MR. GRUENLOH: I can get it.

MR. ATKESON: Is that a paraphrase or is that the wording?

Q. "Yes, it assumes causation."

MR. ATKESON: What's the question?

Q. The question was, "Does your analysis assume that cigarettes cause death and disease?"

A. I denied that throughout the whole deposition, that particular wording.

Q. So it's not your opinion that that particular analysis assumes some causation between cigarettes and disease and death?

MR. ATKESON: I think you have to

show him the deposition for context.

Q. I am asking a straight question. Is that your opinion, or is that not your opinion?

A. Could you go back to your original question?

Q. Sure. My question is, what I call your

early death analysis, and your final opinion is that smoking saves the state money, and I'm asking you if in that opinion, if that opinion implicitly assumes that smoking causes death and disease.

A. Well, the implicit assumption is that smokers have a shorter life expectancy, so there's an increased probability of death or an increased probability of disease.

Q. You are saying probability, not causation.

A. Well, the trouble with causation is that people often misestimate that as being a probability of 1.0, and it's not a certainty, as it is not a certainty that smoking will give you lung cancer, cause heart disease or any of the other innumerable ailments linked to smoking. Rather, there's some probability that these adverse events will occur.

Q. And that premise continues to be present in your analysis for this case?

MR. ATKESON: He called it an assumption, not a premise. That's your word, not his.

Q. That assumption?

A. Well, the assumption is incorporated because my analysis is built on the Manning et al. study, which was the empirical foundation

for that. But I do look at various reference points for the risk of smoking, but I do not make any judgment one way or the other as to whether those reference points are too high or too low. So I'm just taking the Surgeon General's estimates at face value. But I'm not doing an analysis to say yes, I agree with the Surgeon General.

Q. So you don't have any opinion of your own?

MR. ATKESON: Offering as an expert today, no.

MR. GRUENLOH: Is that the witness's answer, that you have just given to him?

MR. ATKESON: I'm telling you what we offering him as an expert on.

MR. GRUENLOH: Limit your objection to the form, please.

MR. ATKESON: We are offering him as an expert in economics.

MR. GRUENLOH: I am not deposing you.

Q. What is your opinion?

MR. ATKESON: Hold on. Let me state this for the record. We are not offering him as an expert today in causation or medicine. You have already asked the questions, and his opinion is irrelevant to this deposition. I

state my objection on the record. You can go ahead.

Q. What is your opinion on causation? Do cigarettes cause disease and death?

MR. ATKESON: Same objection.

A. The available evidences seems to suggest that cigarettes do have an -- do increase your probability of various adverse health outcomes.

Q. By how much do you believe that they increase that probability?

MR. ATKESON: Same objection.

A. I don't know the exact extent. What --

so what I have done is I have taken the medical judgments of the Surgeon General, and used those as my reference points.

Q. So you have used the Surgeon General's Report as the basis for your opinion on the probability of smoking causing death and disease; is that correct?

A. Most of my lung cancer and fatality numbers are from the Surgeon General, which I then coupled with the denominator to get a probability, or from similar sources relied upon by the Surgeon General. They are all in my book.

Q. Why did you use the Surgeon General's

Report?

A. Because I wanted to show that even if I accepted the reference points from the risk levels stated by the Surgeon General, that cigarette risk perceptions were still too high. So I didn't want to muddy the waters by arguing about the accuracy of the Surgeon General's estimates.

Q. Have you ever seen different numbers other than those reported in the Surgeon General's Report that you could have relied

upon?

A. I haven't seen other ones, but I have done research suggesting that the relationship between being a cigarette smoker and your health is very complex, and unless you control for all the other sources of risk, then simply looking at the risk of smokers versus nonsmokers will overstate how risky smoking is per se.

Q. And that was your own work?

A. My own work, as well as joint work with Professor Hersch.

Q. Can you tell me about those?

A. We have two papers. One is published, and the other, we gave it at the American Economic Society meeting. It's not published. Cigarette smokers are more likely to work on risky jobs. They are more willing to bear risks

on the job.

Q. These -- I'm sorry -- are these the conclusions of the study?

A. These are the empirical results.

Q. Can you tell me the titles first?

A. Of the papers?

Q. Yes.

A. The new one is called "Cigarette

Smokers As Job Risk Takers." And the earlier one is the one published in the Journal of Human Resources. It's listed on my vita. But it's about ten years ago.

Q. What were the empirical findings of the first one?

A. The first one in the Journal of Human Resources focused on the wage risk tradeoff. Smokers are more willing to work on hazardous jobs in terms of the wage they require to work on the job. The second study was a national study; the first study was only a local survey. The second study used national data, and we showed that smokers were more willing to work on hazardous jobs. They work in higher risk industries.

For any given industry risk level, they are more likely to get injured on the job. They are more likely to get injured at home.

She has also done work on smokers being less likely to floss their teeth. There is a sequence of other poor health habits correlated with smoke status, even controlling for things like education.

Q. The first paper, you said you did that

with Hersch?

A. Joanie Hersch.

Q. Who funded that research?

A. Nobody. I mean, she may have had a grant from the University of Oregon to gather the data, but the analysis itself we just did as research. So I received no money of any kind from anybody for this project.

Q. How did that paper relate to causation? What I say causation, I mean death and disease caused by cigarettes.

A. Well, if cigarette smokers are risky in a variety of other ways, not just smoking, then if you do a study or the Surgeon General does a study and simply compares the health care costs of cigarette smokers versus nonsmokers and doesn't control for all of their other diverse health-affecting activities, then your estimate will tend to overstate the smoking-attributable risk.

Q. That's one of the conclusions of the paper?

A. No, we didn't talk about smoking-attributable risk. This was just about job risks. So we were just focusing on job risks,

and smokers being riskier people.

Q. So that's the opinion that you arrived at, based upon that paper?

A. It's a straightforward result of that paper, yes.

Q. Is that reported in the paper? Is it printed?

A. No, because the paper is not about the Surgeon General. It's about smokers.

Q. What about the second paper? Who funded that?

A. Well, some of those results I talked about were from the second paper.

Q. Tell me again what the second paper was about.

A. The same thing as the first paper, but we also had data on home accidents and worker accidents on the job, and we used national survey data.

Q. And who funded that paper?

A. Nobody.

Q. Who funded -- do you know who funded the research?

A. Generally, no. I don't need money for

25 just writing papers.

1 Q. What data did you use for those papers?
2 A. The first one was a data set that
3 Joanie Hersch developed. It was a survey in
4 Oregon of several enterprises. The second study
5 I believe was the National Health Interview
6 Survey.
7 Q. Let's go to the first one. The first
8 one was based on an Oregon study, you said?
9 A. That's correct.
10 Q. And using that Oregon data, you formed
11 an opinion which you are applying to a national
12 population; is that correct?
13 A. You just asked me what the paper
14 showed. We showed that for this sample,
15 cigarette smokers were more willing to take
16 risks, for this sample. Two subsequent papers
17 generalized that to the national level, using
18 national data.
19 Q. And one of those is the one in which
20 you used the NHIS survey?
21 A. And another one is a paper Professor
22 Hersch wrote with someone else.
23 Q. What data set did she use?
24 A. She used the NHIS in that one, as well,
25 I think.

Q. Professor Hersch's -- so in both those papers, national data from the NHIS survey was used to formulate an opinion for the national population. So do I have that right?

A. That's correct.

Q. Can you use the findings in those papers to draw conclusions about state populations?

A. We can use these results to draw general conclusions about directions of effects. So that I could expect, if cigarette smokers are more likely to get injured at home nationally, that that would be true of cigarette smokers in Kansas as well as Mississippi. The analysis included regional control variables, but we didn't analyze the interaction of region with these effects.

Q. What regional control variables were used?

A. Just a series of dummy variables for different regions, so controlling for whether you lived in the southwest or northeast, that kind of thing.

Q. Any other demographic controls?

A. Yes, there was the whole detailed set

of demographic, whole shooting match, cross age, race, gender, education, years of work experience, union status, et cetera.

Q. We have talked about three papers, I think. Two are -- one solely by Professor Hersch. What one was done in combination with Professor Hersch, and what did you do on your own?

A. Two with Professor Hersch and one by Hersch and Todd Pickton, P-I-C-K-T-O-N.

Q. And do any of those three papers report mortality data as it relates to smoking, mortality or morbidity data?

A. No, the focus is on job accidents or home accidents.

Q. Okay. In what other states have you been asked by the defendants to testify or in what other states have you been retained as an expert?

MR. LEITER: We have asked that of the state's experts, and we have gotten instructions to the witness not to answer. I am going to apply the same rule here.

MR. GRUENLOH: I'm not asking what the substance --

MR. LEITER: Those exact questions, you can talk to your colleagues on the plaintiff side, when we asked them of plaintiff's experts,

they objected and instructed the witness not to answer, not to list the states, and I'm going to apply the same rule here.

MR. YOUNG: Did you say their objection was valid?

MR. LEITER: I'm applying the same objection.

MR. YOUNG: My question is, did you say their objection was valid? Otherwise, you are not making a valid objection.

MR. LEITER: I am not going to get into a legal dispute. We're objecting, and we are instructing him not to answer. Move on to your next question.

MR. YOUNG: On what grounds?

MR. LEITER: Move on to your next question.

MR. YOUNG: I am asking, is it privilege? Are you contending it's privilege? If so, we need to know what the privilege is so we can challenge at a later date. What's the privilege?

MR. LEITER: I am going to assert attorney-client privilege, work product privilege, and I'm going to instruct him not to answer.

MR. YOUNG: Based upon

attorney-client?

MR. LEITER: Move on to your next question.

MR. YOUNG: Are you conceding the state's objection to that same question was valid, then?

MR. LEITER: I think we have said all we need to say on the subject. Let's move on to the next question.

Q. Are you going to take your counsel's advice not to answer that question?

A. Yes.

Q. In your Mississippi deposition, you testified that you were retained by the lawyers for the tobacco industry sometime around 1986. Is that your recollection?

A. It was sometime around that time period.

Q. Has your recollection gotten better? Do you remember the exact --

A. It could have been the fall of '86. I'm not sure when. It could have been the fall of '87. I just know it was when I was at Northwestern.

Q. And you are still working for the tobacco industry today; correct?

A. I have been retained by the law firm, but I'm not doing any direct work for any of the

companies.

Q. I know that you went over this in your Mississippi deposition, but why do you make that distinction?

A. Because I have never -- well, I don't think I have ever gotten a check directly from a company, except perhaps for the Premier analysis, which was over a decade ago. So all the people I have contact with are cigarette industry lawyers, as opposed to people who are directly employed by the company.

Q. When we talked earlier today about when you started becoming interested in the area of risk perception, you said it was around '86. Can you tell me whether it was before or after the tobacco industry contacted you that you began writing in the area of the risk perception

as it relates to smoking?

A. Well, risk perception generally, I have been interested in since 1974 or so, at least. In terms of smoking, I had some interest in alcohol risks and other food safety risks in the early 1980's. I began a project with Professor Hersch in, I believe it was -- I will have to check exactly -- but I believe it was 1986 when we started the project. So I would say it was concurrent, roughly concurrent, the other research, plus the smoking risk perception work.

Q. The risk perception work that you have done on smoking, that was concurrent with -- was that the same day as you were contacted by the tobacco industry?

A. No, I became interested in cigarette risk perception as an issue when I was a visitor at the University of Chicago. That was 1985 to 1986. That's when the Becker work, the Stigler work -- so it was, at least at the lunch table, it was a hot topic. The period after that, when I went to Northwestern, was when I started actually doing significant empirical work, but it was not until I got the Audits & Surveys data that I could do correct work on smoking risk

perception as opposed to looking at smoking's ramifications for things like job risk choices.

Q. And what year was that in?

A. Sometime after 1985, so sometime between then and 1990. So it happened while I was at Northwestern, both of these things.

Q. Let me ask you, before you got that first survey, that first survey data, had you started to do any research whatsoever in the area of risk perceptions on smoking?

A. Other than just general reading and thinking about it, and the work on job safety, no.

Q. So you hadn't done any research into that until after the tobacco industry contacted you; is that correct?

A. Well, I had done research and reading on what other people had done in the area, so the work by, you know, psychologists in the area, I had read that. So I had read a variety of other studies, but I had not done any original empirical work until I had this data.

Q. And that reading and research, that was concurrent with being contacted by the tobacco industry?

A. It was before. So I had done reading and research in this area when I was at the University of Chicago, which was before they contacted me.

Q. Who gave you the survey data that you are talking about? And we are talking about the 1985 Audits & Surveys data?

A. Right.

Q. Who gave that to you?

A. Barbara Kacir, K-A-C-I-R.

Q. Who was she with?

A. She was with Jones, Day in Cleveland.

Q. When did she give that to you?

A. I don't recall. It was after 1985 somewhere, when I was at Northwestern. I was there only for a few years during that stint, so

it was sometime during that time period.

Q. So sometime after that is when you began your empirical work on risk perception in smoking?

A. That's correct.

Q. When was that?

A. I don't know. As soon as I got the data. As soon as I got the data, I started the work.

Q. So you have been working for Arnold & Porter for about twelve years now?

A. No, I never until now submitted a bill to Arnold & Porter. I think this will be my first bill that I have ever sent them on smoking issues.

Q. Who were you -- what law firm were you first retained by?

A. Jones, Day.

Q. And when was that?

A. Well, I did some work for them in the 1980's, around this time, so I discussed risk perceptions with them. And then I was engaged again for the tobacco litigation.

Q. So you have been working for lawyers for the tobacco industry for roughly twelve years?

A. There's a lot of empty years there

where I didn't do any work, so you can't pick a starting and ending year and make it sound like a continuing relationship, because it wasn't. It's not like the EPA; I have been continuously funded there. I have not been continually doing work.

Q. What years did you actively do work for

them?

A. I don't recall, but I think it was just a short period in the 1980's, maybe a year or so in the 1990's, and then recently. I don't know the exact days.

Q. So during a lull when you weren't working for them, had the lawyers for the tobacco industry, either Jones, Day or Arnold & Porter, come to you and asked you to do some work for them, would you have done it?

A. It depends on what the work was and whether it was interesting.

Q. Did you have a standing contract with them?

A. No.

Q. Did they know your terms of engagement?

A. No. Because your rates change over time, and during that time period my rates were rising, so I didn't write them and say, "In case you call me this year my new rate is this." So

--

Q. Tell me about the lull periods. When were those?

A. I know that the entire time I was writing my smoking book until the time that it

was published, I did no work for the tobacco industry and had no prospect of ever working for them.

Q. From when to when?

A. Whenever that was. I'm not sure what that time period was when I was not doing any work for them.

Q. How long was it?

A. I would guess a couple of years, but I don't know the exact time. I just know, just in terms of how it was from where I was sitting, and when I started work on the book, I was doing nothing for them, and I know that I did nothing for them until after the book was published.

Q. You did not intend to do any work for them again, you said?

MR. ATKESON: That's not what he said.

A. I had no reason to expect that I would ever work for them again. I never did anything for them other than have some conversations with them. I never testified for them, I didn't prepare expert reports to be submitted.

Q. But you don't remember when that time period was?

MR. ATKESON: Other than what he has testified to?

A. The time before the publication of my book -- the publication of my book was 1992. It was probably '90 to '92, somewhere in those years.

Q. Any other lulls?

A. I can't remember that much happening in the 90's either, until the attorney general litigation.

Q. So '93-94?

A. I don't recall particular years. I did some work in some time periods there on various matters, but no continuing work.

Q. What about the period from 1986 to 1990?

A. That was when I started working for them.

Q. Was it your opinion that smokers overperceive the risk of smoking before you were retained by the industry, or did you come to that conclusion after you were retained?

A. I came to that conclusion after I examined the data. So that's a data question. That's not a where-do-you-stand-on-justice type

issue.

Q. And you received the data after you were retained by Jones, Day; correct?

A. Well, I wasn't retained by them indefinitely.

Q. After you were contacted?

A. After I was contacted, I got the data.

Q. And you had no opinion on whether they overperceived or underperceived the risk prior to that?

A. No. Cigarette smoking had been highly rated as a risk in the psychology studies done up to that point. But until this study nobody had precise quantitative information to ascertain whether smoking risks were overperceived or underperceived.

Q. You said you had done a little research prior to speaking with the industry, read some books and things, but you hadn't reached any conclusion of your own?

A. That's just what I alluded to. There had been a number of studies that indicated that people were aware of smoking risks and they had qualitative risk perception. But linking that to a quantitative reference point had never been

done.

Q. So you didn't have an opinion one way or the other?

A. No.

Q. How many hours have you worked or billed on your work on risk perception for the tobacco industry?

A. I have no idea.

Q. Do you have a guess, your best estimate?

A. Over the past 15 years, how many hours have I worked?

MR. ATKESON: No, he's asking on risk perception.

Q. I'm limiting it to risk perception.

MR. ATKESON: So not work on these cases.

Q. Let's include everything and make it easy.

A. I truly have no idea. Anything would be a guess, because you are going back through 15 years of work on a variety of different things, not just AG cases but just consulting work in general, work on regulatory issues. I would rather not guess.

Q. So you don't have any idea?

A. Well, since all my bills I think are

public, I think it's easier just to go through them and add it up, so I would do that if I wanted to do an accurate tally.

Q. How much do you think you have made?

A. I would look at bills and add them up. I don't know.

Q. Well, what do you bill per hour?

A. Now it's $500 an hour.

Q. And that's the same for consulting work as for testimony?

A. Yes.

Q. Do you think that's a reasonable fee for someone of your academic credentials?

A. Maybe -- it may be low. I'm not sure. It's not out of line on -- on the high side. I am probably $200 an hour less than what comparable people get for antitrust cases, for example.

Q. You've done a lot of work for the Hulverson law firm in St. Louis?

A. Yes.

Q. How much did you bill per hour when you worked for them?

A. Four-twenty-five an hour was the last bill, I think.

Q. That was a straight billing rate, the same for consulting and research as for

testimony?

A. That's correct.

Q. Would it surprise you if I told you that other economists of similar academic credentials and standing as your own who are not working for the tobacco industry bill considerably less than you do?

A. Well, I'm -- I don't know what everybody bills. Usually people don't advertise it. But the people I know about, some of them do charge more, people I regard of similar standing.

Q. Who? Who charges more?

A. Alfred Kahn I believe charges more, for example.

Q. Who is that?

A. He works for National Economic Research Associates. He's a professor.

Q. He's the only one?

A. Richard Schmalensee, S-C-H-M-A-L-E-N-S-E-E. Almost everybody who

works for a consulting firm ends up charging more, because they get a piece of the action and I don't. So that's a lot of economists.

MR. GRUENLOH: Why don't we take about five minutes.

(Recess taken.)

Q. Doctor Viscusi, I am handing you what's been marked as Exhibit 1399 to this deposition. Can you identify it for me?

A. This is my expert statement, presumably in this case.

Q. Did you write that statement or did someone else write it?

A. I think this is just a recycling of an expert statement that we prepared for other litigation, and it was an interactive process involving Mr. Atkeson and myself.

Q. What does "interactive process" mean?

A. We would discuss what would go in it, he would type it up, send it to me; I would make changes and send it back.

Q. So did he write that or did you write that?

A. I don't know if anybody wrote it, but I was responsible for the ideas. And I drafted some of the text, he drafted some of the text.

Q. Do you agree with everything that's in that statement?

A. I do.

Q. I have tried to split up your opinions into three separate categories, and I hope that they work for you, too. The first is risk

perception, and that's the one I'm going to deal with first. The second one is early death or the death credit, regarding your work on longitudinal studies, the nursing home work. And the third one is your work on excise taxes. The second and third might sort of be combined, but that's how I split them up.

A. Okay.

Q. Let's talk about risk perception first. Can you summarize your opinion for me on risk perception?

A. The US population generally is aware of the smoking risks, as are smokers themselves. That's the main punch line. To the extent that we can assess whether they overestimate or underestimate the risk, the indications are that

people tend to overestimate the risks, and these risk perceptions also affect smoking behavior.

Q. Is that your opinion with respect to the Washington case, as well?

A. It's my opinion in general for any case.

Q. But in terms of this case, then, your opinion is that the residents of Washington overperceive the risk of smoking; correct?

A. I have no reason to believe that they are different.

Q. Do you have any reason to believe that

they are the same?

A. Well, I could project out, controlling for the demographic mix, to the extent that I could do that, based on age and household size, gender and so on. So that potentially could be done.

Q. Have you done that?

A. No.

Q. Why not?

A. Nobody has asked me to.

Q. And you wouldn't want to do it to make sure that your results are accurately measuring the Washington population?

A. Well, I ran regression results that parallel my '85 results, and you get the patterns of overperception of risks by the younger-age cohorts, so that these results suggest a controlling for education, for example, wouldn't make a huge difference.

I have done splits based on smoking status, gender, education, and the results are quite robust. So it would be straightforward to do a projection for Washington.

Q. Any other factors that you would want to control for?

A. That's all we have. So I would control for all the factors in the Audits & Surveys

data.

Q. So let's go through them again to make sure I've got them all. Education, smoking status, gender, and what else?

A. Age, household size. There's a series of other variables that you could use to control for demographic characteristics, such as whether you own a personal computer or not, a series of background questions, and those would be useful to the extent that I could get counterpart information from the state of Washington.

Q. But you haven't done that for the state of Washington; correct?

A. No.

Q. Do you plan on doing that for the state of Washington?

A. No.

Q. Do you think that your results would be any more accurate or reliable as they relate to the state of Washington if you did that?

A. If you are asking the question of whether people are aware of the risk broadly, whether they overestimate lung cancer risks, I don't think that would be sensitive. But if you are asking, is the assessed life expectancy loss due to smoking 11.5 years in the state of Washington or 11.4, then that kind of difference you could project out, based on the mix of the

people in the state.

Q. So is the answer yes or no, that it would be more or less reliable if you did that for the state of Washington?

A. It depends on the kinds of judgments you are trying to make. If you are only making broad judgments, which is what I am doing here, just making an overall assessment of awareness

of the risk as opposed to worrying about a refined pinpointing of the exact risk perception, then it won't make a difference.

Q. When you say you are looking at it broadly, does that mean you are looking at it in terms of the work that you have done in the past, and you are not tailoring it to the Washington case?

A. No. I'm looking at it in terms of the questions I might be asked. If any attorneys were going to ask the question, do people overestimate the risks of smoking, I can tell that answer based on these numbers. If you are going ask me a question, do people overestimate the risk of smoking -- of, let's say, lung cancer by 30 percent or 31 percent, then that kind of projection, you would want to control for the demographic mix.

Q. So are you saying that if you did

control for it, you think that it would not be a significant change in your numbers?

A. All the various cuts I have done in the data indicate that these findings are robust. Whether there would be a statistically significant effect, I'm not sure. But it would

not be a large effect.

Q. Do you know?

A. No, this is just my judgment based on all of the runs we have done with the data.

Q. Tell me about those runs.

A. Well, you see the outcome of the runs I have kept.

Q. What are you looking at right now?

A. The tables at the end of the "Public Perception of Smoking Risks" paper.

Q. This is the paper we were provided with today?

A. Yes. And there is at least one other table that was provided to your side regarding the education risk perception breakdowns for the Audits & Surveys data.

Q. What paper is that?

A. It's not a paper. One page.

MR. ATKESON: It's an exhibit to the Mississippi deposition. It's two pages we provided at the deposition, two pages.

Q. And that's --

MR. ATKESON: I don't know if they made them an exhibit, but we gave them to Mr. Young, and was it Millette? Whoever else did

the Mississippi deposition.

Q. Was that done as a part of your 1991 survey, or was that work that you did separately on --

A. This is '97 survey work.

MR. ATKESON: They asked for any work papers that he had done, and he had runs, these two, education and -- I forget, now. So we said, "Well, since you've done this, give it to us and we will give it to them."

MR. GRUENLOH: That's been provided to us in the Washington case?

MR. ATKESON: Yes. It's on two fax sheets.

Q. I am handing you what's been marked as Exhibit 1400 to the deposition. Can you tell me, is this your most recent CV?

A. I'm pretty sure it's not. No, it's old. It's at least a year old.

Q. How many studies have you done in the last year that would have been added to that besides this one that I have in front of me?

Let's do it this way. That's the only one that I have. Can you -- do you have an

updated copy of your CV with you?

A. No.

Let's see. Newer. But -- I have added three more articles since then, but this is newer.

MR. ATKESON: Why don't you take this, and he can tell you what the three articles are.

Q. That's fine. I assume these are the same except for some things you may have added on?

A. Yes.

Q. This might be a little tedious, but we'll go systematically so we won't miss anything. Can you go through this with me and tell me each of the studies that might be a basis of your opinion on risk perception that that you are using?

A. Well, a lot of things relate broadly to how people perceive risks and learn in a variety of contexts. Number 3.

Q. What page are you on?

A. The bibliography, book number three, deals with how workers learn about risks on the job. Book number 4, it comes up as well.

Q. Let's do it this way. Limit it for me

to the ones where you dealt with the risk perception of smoking.

A. That's easier.

Q. Okay.

A. The book number 10, second edition of Economics of Regulation and Antitrust, has some smoking material in it of mine. Book number 13 you have in its entirety. Book number 16 is now published, and it deals extensively with smoking risk perceptions as well as the social costs of smoking. It has a different title. It's called "Rational Risk Policy." It's published by Oxford University Press. And that's available for purchase.

"Smoking Math," I haven't written a word of that book. On this vita we have "Cleaning Up Waste." That's about finished, but that's a new title now, and that book's done. Article 83, the one with Professor Hersch, that's 1990.

Q. And 83 is the first one?

A. Yes. So I may have started that research later than '86. I'm not sure when we started that, but it was before '90. There was a publication lag.

MR. ATKESON: Again, you are looking for articles here that talk about smoking and risk perception?

MR. GRUENLOH: Risk perception.

MR. ATKESON: Okay.

A. Ninety-four.

Q. Let's back up a second. I want to clarify something you just said. On 83, you said you may have started your research after 1986?

A. It may have been '87. I'm not exactly sure.

Q. But seeing the date of this article leads you to believe that it would have been later than '86?

A. It might have been. It was a long publication lag, I know.

Q. Was it four years?

A. By the time you write the article, and we went through at least two rounds with the journal, I know it was over two years. Whether it was -- plus the time to do the research. From the time we wrote the papers, it was two years before it was published, so the paper was done before '88. When it was done I'm not sure.

Ninety-four.

Q. 94. Okay.

A. 111. 127 is cigarettes. It probably

comes up in 136. I'm not exactly sure but maybe. 142. 158.

Q. This is --

A. 180.

MR. ATKESON: Do you want us to put a check mark next to them?

MR. GRUENLOH: Why don't you do that.

A. 182. 185. 190. 197. 200. 203. 206. 207. Just an addendum to what I said earlier, I mentioned the results about flossing teeth in smokers. I believe that's in article 207. 212. And that's it for these.

And the other thing I would add, I have changed the title of number 203 to -- I think that's right -- "Public Perception of Smoking Risks." And any new additions have nothing to do with smoking.

Q. Okay. I appreciate that.

Besides the information here, are there any other texts or articles on which you base your opinion on the risk perception of

smoking?

A. It depends on what comes up. But my opinion I can give just based on these things.

Q. Is there anybody else in the literature who you find authoritative on the subject?

A. I quote some results by Joanie Hersch at various junctures. If people raise youth understanding of certain things, she has done work on whether young people understand the addictive character or the habit-forming character of cigarettes.

Q. Anybody else?

A. That's all I can think of right now.

Q. At the time you gave depositions in Minnesota, Texas, Florida, at the time you gave those depositions, you had not reviewed the complaints in those cases. Have you reviewed them since?

A. No.

Q. What about the Washington complaint? Have you reviewed that?

A. No.

Q. Do you plan on it?

A. No.

Q. Why not?

A. My role is to simply ask -- answer the questions that are asked of me, based on my research. I will let the lawyers figure out how that fits into what they are trying to relate.

Q. You don't need it for a general idea of what this case is about?

A. I can answer their questions just simply by responding to the questions, just as I

can answer your questions. I know the complaint contains recouping money for the state of Washington, so I know generally what the case is about.

Q. Do you believe that this case was brought on behalf of any individuals?

A. It's not my understanding that it is.

Q. What is your understanding of what this case is seeking to recoup?

A. Financial costs for the state of Washington related chiefly to Medicaid.

Q. Is it your understanding that Medicare is included in that claim?

A. No.

Q. Medicare is not included in that claim; that's your understanding?

A. I don't know whether it is or not. You

asked me what my guess would be. I have not reviewed the complaint, so I don't know what's included.

Q. What about the Mississippi, Minnesota Texas and Florida cases? Do you know what they were seeking to recoup in the case? Was it all Medicaid? Was Medicare included?

A. I don't know whether it went beyond Medicaid. I know that Minnesota involved Blue Cross/Blue Shield.

Q. Is it important to know what's included to you?

A. No, because I'm simply answering the questions regarding my research findings.

Q. Let me ask you this. Besides the things that you pointed out in your CV and the three surveys -- I call it three surveys, the '85, the '91 and the '97 -- and your book, Making the Risky Decision, is there anything else that you relied upon in this case to form your opinion that Washington residents overperceive the risks of smoking?

A. Other than what's in all my publications, no. So I will rely on everything in all of my publications.

Q. Anything else in addition, other than what you have identified today?

A. Well, I go through a lot of other things. I look at changes in the tar level of cigarettes, which I believe is, are, a reflection of greater concern about health risks in cigarettes. I also review Readers Digest articles trends, Gallup opinion poll trends, government surveys on smoking risks. So all of these are part of the overall issue.

Q. You reviewed the literature, and you are also basing your opinion on the literature? I'm just trying to understand.

A. Well, the tar work is generating statistical trends, and looking at those trends and showing that they -- indicating how they reflect the changing attitude towards cigarettes.

Q. Let me go through these surveys. I am handing you what's been marked as Exhibit 1401. Can you identify that for me?

A. This looks like the first Audits & Surveys report for 1985.

Q. Who is that survey prepared by? Or at the request of? I'm sorry.

A. It was prepared at the request of Arnold & Porter; Jones, Day Reavis & Pogue; and Shook, Hardy & Bacon.

Q. And is it your understanding that all of those law firms are representing the tobacco industry?

A. Yes. Were -- or they were at that time.

Q. Does that raise any concerns in your mind, given that you are relying upon that survey in your work?

A. No.

Q. On the front of that it says "prepared in anticipation of litigation." What do you understand that to mean?

A. The Cipollone case, which was a lung cancer case. That was my understanding of why they ran the survey, but I was not involved at the time they commissioned the survey.

Q. Do you think that law firms ordinarily engage in the development of such surveys, say, for academic purposes?

A. Well, law firms don't have independent resources to run surveys, so any survey they run would relate to some work they are doing.

Q. Who authored that survey?

A. Who wrote this report? I don't know. At the time, I talked to the people at Audits & Surveys, but I forget who the people were.

Q. Do you think the lawyers at Arnold & Porter wrote that survey?

A. No.

Q. Do you think any of the lawyers on that report wrote it?

MR. ATKESON: When you say "wrote the survey," do you mean the questions or the results?

MR. GRUENLOH: Wrote the questions.

A. I have no reason to believe they did.

Q. Do you have any reason to believe they didn't?

A. Judging from the survey questions, which I viewed as good, this is a well-written

survey. Whoever wrote it had some experience in survey design. So if the person happened to have a law degree too, that would be an added bonus.

Q. Is it possible to design a survey to elicit responses one way or the other: for instance, that may be favorable to a position or

unfavorable to a position? Is it possible to do that?

A. It's possible. It's all through the framing of your questions, so you would want to make sure that the question was a fair question.

Q. When you say the framing of the questions, how would you do that? Give me an example.

A. You know, if you said something like, "The cigarette industry, which we all know to produce dangerous products," et cetera. In other words, if you editorialize as part of the question and give an opinion as part of the question, then that would tilt it one way. If you said, "The cigarette industry, which we all know to be one of the leading industries in the United States," that would tilt it in the other way. So there are ways in which you could try and, you know, discourage answers or encourage

answers in particular ways.

Q. So if you did something to allude to the response, the intended response, in the question, that would be one way of doing it?

A. That's not what I said. I said, if you

try to characterize and give an opinion about the industry. But if you told people the answer, sure. That matters, too. If you tell people the answer as part of the answer, that could affect things.

Q. Okay. How else?

MR. ATKESON: Are you asking for a list of ways in which you can screw up question-asking?

Q. I am asking for some ways which you may know or what you think would elicit the desired responses if a party was attempting to do that.

A. You could write surveys that take advantage of people's ignorance. So if you ask them to make judgments where they need other information to make reliable judgments, then that would be one way of distorting the responses.

Q. Is there a scientific term or a term of art for what I'm describing?

A. Framing?

Q. Framing? Is that just one way to do it, or is that the way that you would classify

all of this?

A. I don't know of any one term that

characterizes bad surveys. And you've cut a pretty broad swath through bad surveys here.

Q. What about survey bias? Is this an example of survey bias, or is that just a narrow part of one way of how you would go about eliciting a desired response?

A. Bias would be kind of like -- editorializing would be a bias. You can bring about bias with the other factor I mentioned earlier, which is if people need some information to make reliable judgments as part of the question and you withhold that information, that can cause a bias.

Q. Would it matter to you if the lawyers at Arnold & Porter or any of the lawyers that have their name on the front sheet of that survey, would it matter to you if they had any part in formulating the questions or any part in the conclusions?

A. No, because I judge the survey at face value. I assess the reasonableness of the question. I also devised alternative ways of asking the question and show that the results were quite robust in a survey that I administered that they had nothing to do with.

So I have complete confidence in the survey.

Q. When were those done?

A. '90 to '91 was the time period when I ran my alternative ones.

Q. Did you do any before that?

A. I didn't run any other subjects, no.

Q. Those are sensitivity analyses? Is that what they are?

A. That's what I called them. But it was also a way -- after I started doing the work with this, people would say, what about, you know, lung cancer mortality, for example. So what I wanted to do is try to nail down all -- what I viewed to be the three main issues regarding the survey.

Q. Have we been provided with all of the -- have you provided to your counsel all of the raw data on the sensitivity analyses?

A. There is no data, but everything is in my book.

MR. ATKESON: The raw data he's talking about is the phone surveys that we talked about earlier. He said he didn't have the figures.

Q. You don't have those anymore?

A. No, there were some that we may have dug out for Minnesota. But whatever it was, they were lost shipping them back to me, so I don't have them anymore.

Q. Do you have a list of the questions or any notes or anything?

A. I think they're published in the book. I think the questions are published in the book.

Q. Okay. Let me add one more condition or what-if. What if you were to find that any of the lawyers listed on the front page of that survey had intended to intentionally destroy the results of that survey if the results came out unfavorable to the tobacco industry? Would that change your opinion about the reliability of the survey?

A. No, because the survey survived that test. Here is the data, and I can judge -- here are the results. And I can assess whether the questions make sense, whether they are likely to elicit reasonable assessments of the risk, and I have also tested their robustness. So what their intent was doesn't affect my assessment of how good these data are.

Q. So you are relying solely upon your assessment?

A. No, I also ran alternative versions of the questions, and we did the -- well, I did that both in the North Carolina, and we have replicated that nationally.

Q. Were the questions or the sensitivity analyses that you did, aside from the fact that they are reported in your book, were they peer-reviewed?

A. They are in my Oxford University Press book, which was peer-reviewed by several professors, as well as by the Oxford University Press board, which includes, I think, chiefly academics.

Q. When the peer reviewers looked at that, did they look at -- were they able to look at the raw data? Did you have the raw data back then to give to them?

A. Nobody has asked me for my raw data. I presented enough descriptive statistics that they could find out everything they wanted to know.

Q. Did you ever -- did anyone ever specifically review the questions, either peer

review or otherwise?

A. Oh, yes, because the text of the Audits & Surveys questions is included in my book and -- as are all of my question formulations. So

they reviewed all of those questions, as well as knowing the fact that the Audits & Surveys data, or that survey, was commissioned by law firms.

Q. Where would I find those reviews?

A. Well, I don't think I have them anymore. This is ten years ago, whatever, 1990, '91.

Q. How would I locate them?

A. You can't locate them. So that this is something that was reviewed, and a lot of the reviews, like what was said at the Oxford University press meeting, I don't know. These are internal memorandums of Oxford University Press. All I know is they approved this book for publication. It's the leading university press in the world.

Q. So neither the reviews or raw data on the actual questions is available anymore?

MR. ATKESON: For the -- the raw data we have given you for the '85 questions.

A. And we have replicated the North

Carolina survey nationally, and you have all that raw data.

Q. Did the reviewers make any changes or comments or anything before publication?

A. Sure. I did lots of changes in response to reviewers' comments.

Q. But you don't have any notes or any

data available on those changes, or what they would have been?

A. I write too many things to save notes on every change that I have ever done.

Q. Let's go to the middle survey, the one that you did in North Carolina. That was conducted in 1991; correct?

A. It may have started in '90, but '91 was when it was wrapped up, so I call it the '91 survey.

Q. By the way, going back to this first survey, did you have any input into formulating the first -- the questions of that first 1985 survey?

A. Absolutely none.

Q. And you don't know who did?

A. No.

Q. Your '91 survey, you devised those

questions; correct?

A. That's correct.

Q. Did you use the 1985 survey as a basis for your '91 survey?

A. Well, the purpose was to do a sensitivity test, so I looked at how different wordings of the question -- would they matter.

Q. So the questions that you asked in the '91 survey were based upon the questions that

were asked in the '85 survey; correct?

A. No, I didn't use the exact questions. The intent of the survey was to try and see if you got similar results with alternative ways to elicit the objective risk perceptions. So I didn't want to use the exact same questions. But on the other hand, I would want to know how the new results illuminated the accuracy of the '85 results.

Q. Did anyone else assist you in formulating the questions in that '91 survey?

A. No.

Q. Did you have any contact with any of the lawyers for the tobacco industry during that time?

A. Absolutely none.

Q. And you alone were responsible for devising those questions?

A. That's correct.

Q. Did you have any conversations with lawyers for the tobacco industry either before or after you designed the survey about the questions?

A. None.

Q. So to this date, you have never had any conversation with any lawyer --

A. Between then and the publication of the results. So I didn't talk to anybody about the

-- sure, we've talked about it now, but this is ten years later or -- seven years later.

Q. Are there any drafts of the 1991 survey leading up to the finished product?

A. No. What you have is what's in the book. What exists is in the book.

Q. So there were no drafts with the questions or anything that you have available?

A. No.

Q. Do you know if there were any drafts of the 1985 survey that was done by Audits & Surveys?

A. I don't know. I was not provided with

any.

Q. Would you want to see them if they were out there?

A. I'm happy with what I've got. If they have other test results for other questions, I would look at them.

Q. Did you ever ask?

A. I don't think they have anything else, so I didn't ask if they had anything else lying around. It never dawned on me there was anything else.

Q. But you didn't ask?

A. No, it never crossed my mind.

Q. How many data points or respondents did

you have in your 1991 survey?

A. A little over 200, I think. I would have to look it up. It's about that.

Q. Do you think that 200 is a statistically valid sample when you are using that survey as the basis for your opinion on a national population?

A. Well, North Carolina is a leading tobacco-producing state, so I would have thought, if anything, that survey would have led to an underassessment of the risk as compared to

a national sample. So you could get different results with a national sample, and that's one of the reasons why the '97 national survey was run.

Q. Let me ask you this. Can you test a question before it's asked to find out what the answer is going to be?

A. Can you pretest it?

Q. Yes.

A. That essentially means running a survey, getting the answer -- yes, you can always do that.

Q. So you can test it before you decide to include it in a survey?

A. Sure.

Q. Did you do that?

A. We made sure that people could

understand the question.

Q. How did you do that?

A. Ran a series of pretests with predominantly secretaries that we could find, just to see if they could understand the question wording, and did they have trouble understanding the wording, did the question make sense to them. But it was not in any sense what

the answer was. We didn't really care if they said six or twelve or whatever.

Q. Did Audits & Surveys, that you know of, pretest any of their survey questions?

A. Not that I know of.

Q. Did you ask?

A. No.

Q. Would that be important to know?

A. No, I'm judging the survey questions they ran, which I consider to be good questions.

Q. Getting back to the '91 survey, was that a random sample?

A. No, it's not a national random sample. It was people in the Durham, North Carolina area. So it was a local sample.

Q. You say Durham, North Carolina area. Was it from any particular school or --

A. No, these were adults. It was a survey

of adults randomly called in that area.

Q. Did you have a bigger pool that you started from? For instance did you call a thousand people and you only got 200 people?

A. I don't know the exact answer rate, but the participation rate, once we made contact,

was quite high, because it was a very short survey.

Q. What was the participation rate?

A. I don't recall the percent, but it was a very high percent in terms of the hits once we made contact. We did very well.

Q. Can you summarize for me what the results or the findings of that '91 survey were?

A. Changing the lung cancer question to lung cancer mortality doesn't have a big effect. People overestimate the mortality risks of smoking, the total mortality risks of smoking. And people also overestimate total life expectancy loss associated with smoking.

Q. I'm handing you what's been marked as Exhibit 1402 to the deposition. Can you identify that for me?

A. This is the 1997 Audits & Surveys report on the survey.

Q. And that's the third of the three surveys --

A. That's correct.

Q. -- upon which you relied?
A. That's right.
Q. On the front page, that doesn't say

"prepared in anticipation of litigation," like the 1985 one did. What's your understanding of why that survey was prepared?
A. I don't know whether that has any real importance, omitting the "anticipation of litigation." It was prepared largely to see whether my North Carolina results generalized nationally, and exactly how they did.
Q. So that survey was prepared to test your survey?
A. Well, mostly to expand the sample size to a random national sample instead of a local sample.
Q. Do you think Arnold & Porter spent money on that for some academic pursuit?
A. I assume that they spent it because it was related to their business activities, which is working on tobacco-related issues.
MR. ATKESON: Among other things.
Q. So would it be fair to say that that survey, the same as the 1985 survey, was prepared in anticipation of litigation?
MR. LEITER: You are asking for a legal conclusion.

Q. Do you know what "prepared in

anticipation of litigation" means? If not, tell me which word you don't.

A. I assume that they did it to get national results that in effect would generalize my North Carolina results. And it could be for litigation; it could have been for some regulatory matter involving cigarettes. But almost assuredly it was for something relating to either legal or regulatory action.

Q. Do you know who wrote the questions to that survey?

A. Well, the mortality risk question I believe is my wording. The lung cancer risk question I believe replicates the earlier one. And the life expectancy question is a rewording done by the Audits & Surveys person who I spoke to.

Q. So --

MR. ATKESON: You have been provided with all of the drafts of those questions.

MR. GRUENLOH: All right.

Q. Have you seen the drafts of those questions?

A. I believe I have seen some things. I'm not sure I have seen everything.

Q. What if you were to find out that the lawyers at Arnold & Porter had an active role in writing the questions in that '97 survey? Would that change your opinion as to the reliability of that survey?

A. If there was an active role, it wasn't much for them to do, because these questions are very, very close to my questions and the ones in the 1985 survey. So there was not much squiggle room for them to take this so-called active role.

Q. Are there any differences between the questions asked in the 1985 survey as compared to the 1997 survey?

A. Yes.

Q. What are those differences?

A. Well, the mortality risk question was added, and that's the question I had in my 1991 survey. The life expectancy question was added, which parallels my life expectancy question but is not exactly the same.

Q. What's your understanding of why those questions were added to the '97 survey?

A. Because these things were in my 1991 survey, and the whole purpose of this study was

to see if my 1991 survey results generalized nationally.

Q. You said earlier something to the effect of, it didn't matter to you the motivation of the questioner or what motivation may be behind the question as long as the question is a good question. What is a good question? Who decides what a good question is?

A. I do, in this case, based on my review of it, based on the fact I have been running risk questions for EPA for over a decade.

Q. Are there some criteria to your deciding what's a good and a bad question?

A. Well, I think in this case the principal criterion is whether you are eliciting risk information in a way that people can understand and think about, and the natural way that I found people think about probability is with respect to a reference population such as a hundred. And people, in giving the risk responses, no matter what denominator we tried, always tended to answer in percentage terms.

So if you asked them, out of the whole population of North Carolina, how many people would get sick from E. Coli, people would

say three percent. They wouldn't give me an absolute number. So that's why this percent approach seemed to be the most reasonable.

Q. Is that the only criterion for deciding what a good question is?

A. Well, you also want it to achieve your intended purpose, in addition to being understood. And the intended purpose here is to have an answer that will enable you to make an assessment as to whether risks are overassessed or underassessed. So there could be other good questions, but they may not be good for that purpose.

Q. Give me an example of what a bad question for this purpose would be.

A. Okay. Well, a bad question is asking somebody, "Do you think smoking is risky?" And if the purpose is to determine whether people overassess or underassess the risk, we don't know from the answer what it means for smoking tobacco: somewhat, very, not at all risky, which are usually the kind of answers people give. So that is not a question that is a good question for this purpose.

Q. I'm handing you what's been marked

Exhibit 1403 to the deposition. Have you seen this before?

A. Yes, I have seen this before. I remember the mental illness change to 5, to flat feet.

Q. On the fax cover sheet of that, who does it say it's from and who does it say it's to?

A. It's to Don Pace from Tim Atkeson.

Q. So who do you think made that change, to flat feet from mental illness?

MR. LEITER: You are asking if he knows, or to guess?

Q. Do you know who made that change?

A. No. I could guess.

Q. Well, based upon who that's from?

A. Somebody at Arnold & Porter in Denver, Colorado.

Q. Why do you suppose they changed that?

MR. LEITER: Again, you are asking him if he knows, or to guess?

A. My guess is the same reason I was asked this question in the Florida deposition, "Does cigarette smoke cause mental illness?" I said I didn't know, because if you are talking about

people classifying habituating behavior, if you are going to call that a mental illness, that could be ambiguous. So flat feet is clearly a way to detect whether, you know, people have -- are paying attention to the survey, or have a strong anticigarette bias. So it's a cleaner test of that without having to define a term.

Q. So which one is a better question? The

one with mental illness or the one with flat feet?

A. I like flat feet, because it's cleaner. People know what flat feet is, and you don't have to define the scope of what mental illness is.

Q. Does smoking cause flat feet?

A. No.

Q. Are you answering in terms of probabilities or are you answering --

MR. ATKESON: As a pharmacologist?

A. In my experience I am confident, I am willing to go to a probability of 1.0.

Q. What about mental illness? Does smoking cause mental illness?

A. Not the way I would interpret mental illness, but it does have psychological and

physical effects.

Q. What was the purpose of that question, the flat feet question?

A. Well, the main purpose is to -- you pick up two kinds of people. People who would have kneejerk smoking-causes-everything responses as well as people who may not be taking your survey instrument seriously, as well as people who are just not paying attention. So there's three things.

Q. Do you think that was an adequate control for that?

A. Well, it's one control. Another control is to look at the consistency across answers. For example, do people who assess a high lung-cancer risk also assess a high mortality risk? So that would be an internal consistency check.

Q. Did you do that?

A. That's one of these tables. There's a cross-tab of lung cancer and mortality risk perceptions.

Q. Were those questions, the mortality questions, asked in a separate survey or the same survey?

A. The same survey.

MR. ATKESON: You are talking about the 1997 survey? The same survey as the flat feet survey?

MR. GRUENLOH: I'm asking about the results that he just told me that were reported.

A. (continuing) Same survey.

Q. But would it make any difference if they were in the same survey as opposed to a different survey?

A. A different survey would have different people, so you don't have a consistency check.

Q. Are there any other checks that you would do?

A. I would run the regression equations for lung-cancer risk perception, as well as other regression equations. And they parallel the 1985 results, so that's a consistency check. These are entirely different samples.

Q. Anything else?

A. That's all I did. I have also run my 1991 survey, which closely paralleled this, with a lot of different variants.

Q. Let me ask you this. Aside from

looking at the grouping of questions -- I guess, responses -- is there any other way to determine whether or not the responses were completely random?

A. They weren't random, because I have run regressions and shown systematic relationships.

Q. Did you do anything else besides regressions?

A. I ran cross-tabs. We looked at the individual data responses. We have run controls for flat feet. We have done analyses with flat feet and without flat feet. The results are quite robust to different variations.

Q. And all of that material has been provided to us?

A. No, I don't save every run I have done. Basically I do the runs, and I have tossed them. So the things that I save are the tables that I have included in papers, but I don't save all of my backup runs.

Q. So is there anything that's been provided to us that would allow us to check the robustness of those runs except for the -- just the results that you have reported in your tables?

A. You have the data.

Q. I thought that was what my question was to you before.

A. You have the data. You can do with it whatever you want to check.

Q. So the actual raw data?

A. You have all the raw data for '97.

MR. ATKESON: And '85.

Q. What about the regression formulas?

A. These are in the book. They are in the book for '85, or in my various articles. And the '97, they are here, these results. I mean, I didn't save all of them. I ran lots of things.

Q. So if we wanted to duplicate your tests that you have run to check on the robustness, could we do that exactly, so --

A. No, I didn't write down every test I

did, and I didn't record every regression I ever ran. You could replicate these, all these tables.

Q. The '85, the '91 and the '97 surveys, the three surveys, those look at the risk perceptions of the population at a given time; is that correct?

A. That's correct.

Q. Are those longitudinal or cross-sectional studies?

A. Cross-sectional.

Q. What's a longitudinal study?

A. I will interview you in 1995, and I will come back to your house in 1996 and ask you some questions. I will come back in 1997. So you track people over time.

Q. Why did you go cross-sectional?

A. Well, I didn't really much care how risk perception changed from 1997 to 1998, so there's no real reason to track them over time. There was no major experiment taking place in terms of risk information that was being disseminated that would be making it interesting to monitor a change in risk perceptions.

Q. Could you have done it?

A. Sure. You can just -- but you have to establish a group of people there that you can

keep track of, so you can't do it with a random telephone survey. It's going to be more expensive, because people have to sign up to be followed.

Q. Let me ask you, could you have actually

done it? Did you have the funding?

A. I didn't ask. I didn't have the funding to do more than I did in 1991. I had no outside funding for that.

Q. Would a longitudinal study have been much more difficult to do?

A. It would have been more expensive, yes.

Q. None of these studies, these three studies, attempt to measure the risk perception of the public in the 50's, the 60's, the 70's; is that correct?

A. That's correct.

Q. It's only 1985, 1991 and 1997; correct?

A. Those are my survey years.

Q. It is going to be your opinion that these studies may be applied to accurately assess the risks -- and when I say "these studies," I mean those three surveys -- to accurately assess the risk perception of the Washington population in the 50's, 60's, and 70's?

A. Well, we can make some judgments

regarding the level of risk perception and how much they seem to be changing. From 1985 to

1997, there was not a stark shift in risk perceptions. So if you think that risk information has been gradual and there's no critical event that changed it, then you would be able to extrapolate backwards and say, ten years before that, risk perceptions probably weren't that much different either, because from 1975 to 1985 there was no major salient event that should change the world.

Q. So it is going to be your opinion that your findings in those three surveys, 1985, '91 and '97, can be applied back in time to the 50's, 60's, and 70's, of the Washington population?

A. To the extent that you believe that the information dissemination has been fairly gradual in the immediate period before that, yes.

Q. In your Mississippi deposition, you gave the opinion that the Surgeon General's Reports didn't do much to influence the risk perception of the public. Do you remember that?

A. What I probably said was that people don't read the Surgeon General's Reports. That doesn't mean that they don't read the paper. Do

you recall the exact wording, what I allegedly --

Q. I'm representing to you that you said that the Surgeon General's Reports do not do much to influence the perceptions of the public as it relates to smoking.

A. Right, people don't read the Surgeon General's Reports per se.

Q. That's what you meant by that?

A. Right.

Q. Nothing else?

A. That's correct.

Q. What's the difference between a qualitative question and a quantitative question?

A. A quantitative question is, how much money do you make? A qualitative question would be, are you rich or poor?

Q. Which one is better?

A. It depends on what you are trying to get at. If you are trying to figure out the average income in the state of Massachusetts, you would want to know exactly what their income is, not going around asking people, "Do you feel rich or poor?"

Q. And you believe qualitative is better, in your opinion?

A. Quantitative?

Q. Quantitative.

A. Yes.

Q. Quantitative. And that's what you used, quantitative?

A. That's correct.

Q. Do you think that people think with numbers generally? Do you think people think in terms of numbers when you ask them a question?

A. I think you can frame it in a way that can get them to think naturally in terms of numbers.

Q. What about generally, though? Do you think people think in term of numbers?

A. It depends on how hard the numbers are. I think in terms of simple percents, shares, I don't think it's hard to get people to think in those terms.

Q. In one of your articles -- I don't remember which one it is. I can find it if you would like, but it was on the first page -- you wrote, "The more information the better is one of the basic tenets of economics."

Do you remember that?

A. Yes.

Q. What article was that in; do you recall?

A. No, but it was, I think it was my "Consumer Processing of Hazard Warning Information" in the Journal of Risk and Uncertainty.

Q. I don't want to look for it. Is that still your opinion?

A. That's right. That more information is better?

Q. Yes.

A. That's the tenet of economics. The whole purpose of economics is to know more. That's not necessarily true for how people process information.

Q. It isn't true that more information is better?

A. It's a theoretical assumption; it's not an empirical result.

Q. Do you agree with that assumption?

A. No, that's -- in terms of a theory, if people have unlimited information-processing capabilities, more information is always

better. But what we demonstrated in that article is that more information actually can confuse people. It causes problems of information overload.

Q. What was the difference in risk perception in the 1985 survey as compared to the 1997 survey?

MR. ATKESON: On what issue?

MR. GRUENLOH: Lung cancer.

A. Full sample, in 1985 was 4.3. 1997, .47. For smokers it was .37 in 1985, .40 in 1997.

Q. So people perceived there to be a greater risk of lung cancer in 1997 as opposed to 1995; correct?

A. It went up by .03. I'm not sure if these differences were statistically significant.

Q. But there was an increase in the perception?

A. That's true.

Q. Would you agree that since the 1960's, the press has taken a more active role in trying to communicate the risks that are associated with smoking?

A. I would go further and say that the press has not necessarily tried to communicate the risks but have often taken an antismoking position that goes beyond risk communication. So I would say that it's more proselytizing.

Q. I'm not sure that answers my question.

In 1997 did the press take a more active role or a less active role in communicating the risks, the perceived risks, as compared to 1960? What do you think?

A. Well, that's the thing I answered. I think the press is being much more active now, but it's not necessarily just risk communication. Much of what you see is attacking the cigarette industry and demonizing it, which is not the same as risk communication.

Q. What do you think the general trend has been as it relates to risk perception?

A. I think it's been up.

Q. Up over time?

A. Up over time.

Q. So you think people perceived a greater risk in the 1960's as compared to 1997, or lower?

A. Lower in the 60's compared to 1997.

Q. So you would agree with the statement that the risk perception of the public has increased?

A. Well, it increased by a little bit, even in my data. So yes, the evidence suggests that it has gone up.

Q. Would you agree that the trend in risk perception mirrors what I called dissemination of information by the press to the public, you

called something else, in your prior opinion? Would you agree that that mirrors that?

A. No, it's not just risk information. That fact that we are more and more affluent now makes us more sensitive to health risks than we were before. I think we are more safety-conscious, more generally. So you may value the risks more. They may get more press coverage, apart from informational reasons, as well.

Q. But there's more information out there now than there was back in the 60's; right?

A. Yes, we know more now than we did then.

Q. And the people's perception of the risks of smoking is greater now than it was back in the 60's; correct?

A. It's probably true. I don't know for

sure, but that's probably true.

Q. Well, based upon your data, you know?

A. It's greater now than in '85. I'm not sure if it's statistically significant.

Q. What would statistically significant be?

A. You can't tell that off the top. You have to run a significance test to see whether they are different or not. I report some of them in the paper, but I'm not sure I reported that one.

Q. The change in risk perception from 1985 to 1997 that we discussed before regarding risk perception relating to lung cancer, is that change statistically significant?

A. Which change?

Q. The change from 1985 to 1997 in the risk perception as it relates to lung cancer, the .37 to .40, I think?

A. The lung cancer risk assessments were significantly higher in 1997 for the full sample, but not for current smokers. These results are reported on page 13.

Q. Why for the full sample?

A. For the full sample?

Q. Why for the full sample and not for smokers?

A. That difference was statistically significant. I think it was a bigger difference. So one -- was it .02, .03? In any event, the significance test came out that way.

Q. And you did that test?

A. My computer programmer did.

Q. Is that reported in there?

A. Yes.

Q. Okay. Which of the three surveys, the '85, '91 or 1997, study the Washington Medicaid population?

A. None of them.

Q. Did any of the three have any members of the Washington Medicaid population in them?
A. Perhaps.
Q. Do you know?
A. No.
Q. Is it your opinion that Washington residents overestimate -- overperceive the risks of smoking?
A. Yes.
Q. On what do you base your opinion?
A. The results for the nation as a whole,

which do not vary starkly by demographic mix, indicate substantial overperceptions of the risk, and these results are robust according to region; they are robust by educational group, they are robust by gender, smoking status. So no matter how you cut the data, people overestimate the risk.
Q. I just want to make sure I understand what you are doing. You have taken national data and you have applied that to a subset, the Washington population?
A. You are asking me to do that. I'm not sure --
Q. Have you done that or have you not?
A. No, I have not done any specific Washington analysis.

Q. So you don't know whether Washington residents overperceive the risks of smoking?

A. Well, we know that nationally they do, and we know that the results indicate overperception regardless of age, education, gender, all the various demographic controls you would do. So I cannot envision anything you could do to change that result.

Q. But have you done that test for the

Washington population?

MR. ATKESON: Asked and answered.

A. I have done it nationally for the various demographic groups, as well as controlling for these various things, and the results are robust.

Q. You have done it nationally, but you haven't done it for the Washington population?

A. The Washington population is part of the sample.

Q. Specifically for the Washington population?

A. I haven't broken them out separately.

Q. Do you plan on doing that?

A. Nobody has asked me to. I think that without -- it would be a very small sample. You probably couldn't get much in terms of statistical significance from that.

Q. How big of a sample would you have to

have from Washington to determine whether or not the results could be applied, your national results could be applied to the Washington population?

A. I have no idea. I mean, that's something that -- sampling questions in terms of

sample size would be something I would want to think about and actually look at, you know, the answers, whether you are trying to get at subpopulations or not. So if you are trying to get at a Medicaid subpopulation, how big a sample do we need overall to pick up enough Medicaid people? These are nontrivial questions that I don't think you can just wing.

Q. So it's the test that you did in your 1991 survey as applied to the other two surveys that you are using to reach your conclusion that these national results can be applied to the Washington Medicaid population?

A. No, what I'm saying is that these results, if you look at the national results varying with the demographic characteristics that you would want to alter to make it representative of the Medicaid population, such as educational levels, indicate that, if anything, the results are strengthened when you look at lower educated groups.

Q. Tell me which variables you would look at.

A. Well, I looked at the education, and that's one of the tables that we submitted to

you. And if you look at the low educational group, they overestimate the risks by more than do the better educated people in the sample.

Q. Any other variables that you looked at?

A. I looked at age, which I have no reason to think, I don't think was starkly different in age.

Q. Each of these variables you are describing you looked at, you took the variables from the data from the Washington population?

A. No. I looked at how in my sample the results varied, demographic characteristics, age, gender.

Q. So none of these variables you are telling me about right now, none of the information, you didn't take any of that from the Washington population?

A. No.

Q. Besides education and -- what was the one you were starting to mention? Age?

A. Age, gender, household structure. These are the main things included.

Q. What else?

A. We also did controls for region,

information the person had received about

smoking, flat feet.

Q. Any other variables?

A. I don't recall. We did some things with whether you owned a computer or not, so we did runs where that came into play. So a lot of those background questions that are not part -- of the survey not specifically smoking-related, we also used as part of the analysis.

Q. What about obesity?

A. I don't think we had an obesity question.

Q. What about alcohol use?

A. I don't think we had an alcohol use question.

Q. Was there any information out there on any variables that you did not use?

A. Well, they had a lot of -- they had things like, "Do you own a personal computer?" And we used those for instrumental variables estimates. But not as explicit things to predict smoking risks perceptions.

Q. You gave me five or six variables here. Are there any other variables besides that? And I think the answer is no, is that right? Are those all of them?

A. Age, gender, household size, education, the various informational variables and various regional dummy variables. I have done things with prices in the state, and other variables, tax structure in the state, other things. So I have done a lot of analyses.

Q. Now you are broadening it. I thought there were only five or six and --

A. You can construct any you want, based on the state. So knowing what state, you can structure state specific questions.

Q. Did do you that for Washington?

A. I did that for every state.

Q. Did you do that for Washington?

A. Every state, including Washington.

Q. What are the results?

A. They are not in here. I ran smoking probability equations.

Q. And where are those?

A. I don't have them. I ran them. I ran them and eventually got the right -- where it looked good. But this is the risk perception work.

Q. You are telling me that you controlled for all the state-specific variables in

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Washington, but you don't have those results?

A. No, I have run other runs on like the smoking probability, not risk perceptions, where I controlled for the tax -- cigarette taxes in the state, the price of cigarettes in the state. But I don't have those results.

Q. You don't have those results?

A. No.

Q. They are not finished yet?

A. I ran the runs, I said, "They look pretty good," tossed them. And eventually we will get around to running a set of results that we'll put into a paper, but it didn't have anything to do with the litigation. I do research with the data on my own, apart from this. I'm not -- that's not funded.

Q. Besides that which you said is not available to us, is there anything else that you have done using Washington-specific variables on risk perception of smoking?

A. No.

Q. And why did you decide to limit it to only those variables that you used?

A. Well, this particular set of variables I picked because it mirrored the ones that I did

for the 1985 Audits & Surveys data, so I wanted to show the parallel equations.

Q. Who decided which variables to use in the 1985?

A. I did that, too, based on the set of variables available in the survey.

Q. When you did those, what was your basis for stopping at six or however many variables you gave me before? Why didn't you include more?

A. Well, I also had a series of regional dummy variables to characterize different regions of the country. And I ran some regressions with maybe 30 variables. I put in a whole set of informational variables.

Q. What's a dummy variable?

A. It's a variable that takes on a value of zero which in fact -- it takes on a value of zero when an effect is not present, or a value of one when it is. So a dummy variable would be, union member. If you are a union member, it's a one; if you are not, it's a zero.

Q. So you have taken studies which survey populations other than the Washington Medicaid population at points in time, at single points

in time, '91, '85 and '97, and for this case you are applying that to form your opinion for the Washington Medicaid population?

A. Yes.

Q. And you believe it's appropriate to do

so?

A. I believe the results are quite robust to the population mix.

Q. Is it scientifically valid to do that?

A. I think so.

Q. Do you think your opinion regarding the Washington Medicaid population is accurate, using that methodology?

A. This goes back to how I characterize my opinion. If you are asking, "do people overestimate the risks of smoking," that opinion is accurate. If you are asking, "do the Medicaid recipients have an overall lung-cancer risk assessment of .43, .44, .45," that refined distinction I couldn't make, based on what I have done.

Q. So you don't know what the risk perception of the Washington Medicaid recipients is as it relates to, say, lung cancer?

MR. ATKESON: Asked and answered.

A. You don't know exactly, and even if you surveyed them, you won't know exactly. You only have a survey. You never know exactly until you ask everybody.

Q. Besides the work that you have done on risk perception in smoking, what other studies have you done measuring risk perception? Are

there a lot of them out there?

A. That's virtually all -- most of what I have been doing since 1976 has focused on risk perception and how it affects behavior, studies of job safety risk perception, numerous -- consumer safety risk perception, risks of climate changes, communicating ambiguous risk information, for EPA, how hazard warnings affect risk perception of various kinds.

Q. Have you ever done anything on pollution?

A. Risk of climate changes would be a pollution type of thing, yes.

Q. What were the results of that study?

A. People, if you provide them risk information regarding conflicting risk judgments, people tend to gravitate toward the high risk assessment, so they tend to exaggerate

the risk.

Q. Do you know what the risks of smoking are?

A. I don't know the, quote, true risk of smoking, exactly.

Q. Is it -- what is the true risk of smoking? What does that mean? You are making a distinction between true risk --

A. And estimated risk.

Q. -- and false risk?

A. We have the estimated risk by various people, but I don't know what the true underlying risk is, and they don't, either. Otherwise, we would just close up shop on doing medical research.

Q. You know the estimated risk, are you saying?

A. I have estimated the risk based on various reports such as those of the Surgeon General.

Q. Is it important to know what all of the risks are, as opposed to, say, just the risk of lung cancer?

A. No.

Q. Explain to me why not.

A. What you need to do is to have people deterred from smoking to the efficient degree. So let's say cigarette smoking did cause, with some probability, a weird disease that people didn't know about. Provided all of their other risk assessments are sufficiently high, then you will still get adequate deterrence.

Q. Tell me again -- you keep saying, "with some probability." Tell me again why you have this hang-up with the definition of causation.

MR. ATKESON: Objection. Mischaracterizes his testimony, and poor use of

words.

MR. LEITER: And argumentative.

MR. GRUENLOH: Any more?

MR. LEITER: Asked and answered.

MR. ATKESON: I'm sure there are several.

A. I was just trying to be precise with my hypothetical example, so, to let you know this was an ailment that would be caused with some probability, not to everybody.

Q. Do you know what the position of the tobacco industry is as it relates to causation? Do they admit or deny that cigarettes cause

disease and death?

A. I don't know. I deny those statements because I think they are misleading, and they do not reflect the probabilistic character of the risks.

Q. Do you know what the tobacco industry's position is?

MR. ATKESON: Asked and answered.

Q. Do you know?

A. I don't know, but I would be surprised if they disagreed with me.

Q. Let me ask you about a few diseases here, and let me know if you think that there are risks that may be associated with smoking or may be caused by smoking. Do you think leukemia

may be caused by smoking?

A. I don't know.

Q. Do you think that emphysema may be caused by smoking?

A. If we are going to through all of this where causality is not going to be in probabilistic terms, where some people could interpret this as for sure, my answer is going to be no, all the way down the list.

Q. What in terms of probability to you

would mean causation?

A. 1.0.

Q. It has to be 1.0 absolute?

A. Otherwise, "it increases the probability" would be a more accurate phrasing of the relationship.

Q. So if cigarettes caused 99 people out of a hundred to get lung cancer, would you say that they cause or do not cause lung cancer?

A. I would say they give you a 99 chance out of a hundred of getting lung cancer.

Q. But would you say that they cause lung cancer?

A. I would say they cause you to have an increased probability of lung cancer.

Q. But not just cause?

A. Right. I don't use terminology for certainty to deal with probabilistic events.

Q. For each of these, why don't you just tell me if cigarette smoking elevates significantly the probability of a person's risk of getting death and disease. Can you tell me that?

A. I'm not sure what you mean by a significance. Whether it means big, whether it

means statistically significant, or whether somebody has found a link.

Q. Let's get rid of "significantly," and tell me if it elevates the risk.

MR. ATKESON: His personal opinion?

MR. GRUENLOH: His opinion.

MR. ATKESON: His personal opinion?

MR. GRUENLOH: As an expert in this case.

MR. ATKESON: He's not being offered on those issues as an expert.

MR. GRUENLOH: He's an expert on risk perception. I want to know what he thinks the risks are.

MR. ATKESON: Ask him. This is not -- ask him.

Q. What about heart disease?

MR. ATKESON: If you have a personal opinion on that, you can tell him.

A. Yes.

Q. Yes, you think that smoking raises the probability of a person getting increased morbidity or mortality?

A. Yes.

MR. ATKESON: You are the one asking

the question. Don't look so stunned that he answered it.

Q. What about birth defects?

A. Yes.

Q. What about mental illness?

MR. ATKESON: Same thing.

A. No. But I have discussed mental illness, and if you call psychological effects of smoking mental illness, yes. But the way I think of mental illness, no.

Q. What about additional healing time?

A. Possibly.

MR. ATKESON: To what?

A. Healing of what?

Q. Thanks.

MR. ATKESON: Is this related to mental illness?

Q. Low birth weight?

A. Yes.

Q. Gum disease?

A. I don't know. But chewing tobacco, yes.

Q. Asthma?

A. I don't know. It may increase your symptoms. I don't know whether it gives you

asthma if you have never had it.

Q. What are the important components that you have to measure, that you have to look at, when you are measuring risk perception?

A. Well, I like to define what is the health outcome that we are talking about and what the probability being assessed for the health outcome, would be one way to think of it.

Q. What about the scope of the risk?

MR. ATKESON: Asked and answered.

A. What you are saying, is that distinctive from what I have already talked about? Scope of the risk in what way?

Q. All of the ways a particular risk may affect a person.

MR. ATKESON: Asked and answered.

A. I have discussed that, where you don't need to go through every risk and every attribute, provided that I elicit enough risk perceptions from a very serious attribute that alone is sufficient to cause adequate incentive to avoid the behavior.

Q. If there's a 99 percent probability that a smoker will get lung cancer, how should

those risks be relayed, in your opinion, to accurately inform the smoker of his or her risks of getting lung cancer?

A. Well, one thing you could do is tell smokers that cigarette smoking increases your probability of lung cancer by 99 chances out of a hundred.

Q. But you shouldn't tell them that it causes lung cancer? Is that your opinion?

A. I prefer the probabilistic thing because people say "cause" now, and the probability is .06, you know, or whatever the number is, which is roughly a factor of ten smaller than .99.

Q. Is there any other way besides saying what you just said, 99 out of a hundred? Is there any other way that the industry could adequately inform consumers of the risk of smoking?

MR. ATKESON: You have changed the question completely. You asked him, how would he respond to your question. Now you're asking how the industry should respond. Are you intending a difference?

Q. How should the industry respond?

MR. ATKESON: To?

Q. Do you know the question?

A. I had the same problem that Mr. Atkeson did, which is that you asked me to design a warning before. You asked me why you shouldn't tell them it causes lung cancer. Then you shifted to the industry and what the obligations of the industry are, which involves a legal judgment.

Q. You said one way to do it would be to say that smoking causes 99 people out of a hundred to get lung cancer; correct? That would be one way to inform the consumer?

A. That may not be the exact wording I would use if I actually spent time thinking of the wording, as opposed to winging it. So I might say something like, "99 out of a hundred smokers will get lung cancer because they smoke." I might tinker with the wording, but that's generally how I would approach that.

Q. Has the industry done that?

A. No, because 99 out of a hundred don't get lung cancer.

Q. How many out of a hundred do get lung cancer? Do you know?

A. We don't know. That's the problem, we

don't know exactly. We have an estimated risk.

Q. What does the Surgeon General's Report say about it?

A. He doesn't. I had to compute the probabilities based on his absolute numbers.

Q. Is there any other way that you could do it? If 99 people out of a hundred got lung cancer as a result of their smoking, is there any other way that you could do it?

MR. LEITER: Do what?

Q. Inform the consumers of the risk?

MR. LEITER: You, meaning Doctor Viscusi?

A. I came up with two wordings. I may be able to come up with more. I mean, I have just been thinking about this for five minutes, with your hypothetical risk.

Q. Is it possible that people are unaware of the illnesses other than lung cancer, other than those that you asked about or that Audits & Surveys asked about in the surveys?

A. It's possible there are some illnesses whose probability is increased by smoking that they don't know about.

Q. Did you ever do any research to determine the risk perception of, say, low birth-weight babies as it relates to smoking?

A. No.

MR. ATKESON: The question was whether he has asked babies about their risk perception?

MR. GRUENLOH: That's not my question.

MR. ATKESON: Then you need to word it better if you want a good answer.

Q. Have you ever done any research on people's risk perception as it relates to emphysema and smoking?

A. To the extent that emphysema affects your total mortality risk or your life expectancy, then that would be picked up by those.

Q. Same question, but on the increased healing time that smokers may incur. Have you ever done any research on that to find out if people know about that or not?

A. I have no question I have asked on that.

Q. So you don't know whether people

overperceive the risk of that or underperceive the risk? You just don't know?

A. That's correct.

MR. GRUENLOH: Do you want to take lunch?

MR. ATKESON: That's fine.

(Luncheon recess taken.)

Q. Doctor Viscusi, did you analyze all the information that the public had on the risks of smoking back in the 50's?

A. I don't know everything the public had.

Q. Did you analyze any of it?

A. I analyzed the Reader's Digest articles. I tracked the Gallup Poll results through the 50's. I have looked at Roper Poll results, and any other evidence discussed in my book. But this wouldn't include everything the public had access to. There's also cigarette advertising. I alluded to that in the book as well.

Q. So is it your opinion that, based upon those things that you looked at, that you are fully aware of what the people perceived the

risks to be and what the risks were?

A. Well, I am not fully aware of what the risks are now.

Q. What about the people's perception? Strike that. What about the information that was available to the people?

MR. ATKESON: You are talking about in the 50's?

Q. In the 1950's.

A. There was less than there is now.
Q. What about the 60's? Did you analyze all that information that was available to the public?
A. I don't know everything that was available to the public.
Q. What about the 70's?
A. Same. I don't even know everything that's available to the public now.
Q. How can you give an opinion on risk perception if you are not aware of the information that was available to the public?
A. I don't think anybody ever knows everything. That was what your question was. There are very few subjects I claim to know everything about, or to have every piece of

information that's ever been released regarding cigarette risks. I don't know that anybody in the world knows everything about cigarette risks.
Q. Well, how much is enough? Did you analyze most of the information that was available?
A. Well, how are you quantifying the information?
Q. I want to know what you analyzed.
A. That's a different question. I have

read the Surgeon General's Reports for a number of years. I have read a variety of the articles in the literature.

Q. I thought you said the public doesn't look at the Surgeon General's Report for the perception --

A. You asked what I read, not what the general public reads. That was the question before, what I read.

Q. The information that was available to the public, I think was the question.

A. No, you asked me --

Q. That's what I am asking you for now.

A. That's different than what you had

asked before.

Q. I'm changing it, then. So --

A. So what's the question?

Q. The question is, let's go to the 80's. Did you review all of the information in the 80's or a substantial portion of the information in the 80's regarding the risks of smoking that was available to the public?

A. Once again you would have to define what "substantial portion" is.

Q. Well, let's say out of the universe of it, do you think you reviewed 50 percent of it?

A. I don't know how to quantify it. You tell me how to quantify it, then I'll tell you

the percentage.

Q. Tell me what you reviewed.

A. The same thing I reviewed for the other period. I read the Surgeon General's Reports. I also reviewed the public opinion polls, Reader's Digest articles, articles published in the literature about smoking risks.

Q. How many articles?

A. I don't know. In the course of this work I have read hundreds of articles, in the course of my smoking research.

Q. And you did that with articles published in the 50's, yes or no?

A. I don't know what time period the article pertained to. I have read articles published in Reader's Digest from the 50's.

Q. What about the 60's?

A. Same thing.

Q. 70's?

A. Yes.

Q. 80's?

A. Yes.

Q. How does your opinion that people overperceive the risks of smoking relate to this case?

MR. ATKESON: You are asking for a legal conclusion?

MR. GRUENLOH: I'm asking his understanding.

A. It relates to whether people are aware of the risks, and that's my only role, is to provide the information regarding awareness of the risk, at least on that topic. I'm not sure exactly how it's going to come up.

Q. Did the state of Washington overperceive the risk of smoking?

MR. LEITER: Meaning the government?

A. The institutions don't have risk perceptions as far as I know.

Q. Going back to the three surveys, the question was not asked of the individual respondent, "What is your chance of getting lung cancer from smoking," was it?

A. That wasn't the wording of the question. The question wording you have.

Q. Why not?

A. The question phrasing that we have is the natural way for people to think about it. It also parallels the way I've presented and asked risk perception questions in research done for the EPA. It's also an approach I have validated in those studies as giving a reasonable reflection of people's risk beliefs.

Q. Are people going to be more informed and have more information about their own risks

as opposed to other people's risks?

A. What risk are we talking about?

Q. The risk of getting lung cancer because of smoking.

A. They know whether they smoke or not, and if you do smoke, your risk is higher.

Q. Do they know whether they exercise or not?

A. Yes.

Q. Do they know whether they're overweight or not?

A. Yes.

Q. Do you think that those factors can play a part in their determination of whether that's a risk to them or not?

A. I don't know if there's a significant effect.

Q. You have never looked to find out?

A. No.

Q. You could have asked them what they believe their own risk to be, couldn't you have?

A. How would you do that?

Q. Well, you tell me.

A. I didn't ask it.

Q. Could you have done it?

A. Could I have done what?

Q. Could you have asked them individually

what their risk of getting lung cancer as a result of their smoking was? "Are you a smoker? If yes, what do you believe your chance of getting lung cancer is?"

A. How would you phrase that? Would you say -- my answer to that, let's say hypothetically that the respondent says, "I think my chance is high."

Q. All right. Could you have said, "What percentage chance do you think you have of getting lung cancer?"

A. Like how many out of a hundred. It's more concrete. That's a percentage. I have always used concrete denominators. And I think my question essentially accomplishes the same thing.

Q. As asking the individual what percentage chance they have of getting a disease as a result of smoking?

A. For one thing, you can't ask that question of the nonsmoking population because they don't smoke. So one thing I wanted to do was to get that answer, because that throws out three-quarters of the sample.

Q. So you are saying you couldn't have asked individuals about their own risk?

A. You can ask that question.

Q. And tell me again why you didn't.

25 A. Because first of all, my question is a

1 fine question. It gives an accurate reflection
2 of people's risk beliefs. It reflects an
3 approach that's been corroborated in other risk
4 studies as being a valid approach. I have no
5 reason to want to change it.
6 Q. What studies have corroborated it?
7 A. I have done a series of studies for EPA
8 where we present risk information based on
9 reference populations. Some of them are in
10 these books.
11 Q. But those are studies that you have
12 done?
13 A. Yes.
14 Q. So your studies corroborate your study?
15 A. My published studies on other topics
16 corroborate the fact that asking people risk
17 questions regarding reference populations is an
18 acceptable way to do it in terms of giving you
19 valid results.
20 Q. Is there anything out there in the
21 literature not authored by you that corroborates
22 doing it this way?
23 A. Some of these, I had co-authors. There
24 aren't that many people that do risk -- I can't
25 think of that many people that do risk studies

with objective risk questions. So that the fact that I have done almost all the studies in the literature shouldn't be held against me.

Q. So is the answer no?

A. I can't think of people who have done it differently or the same. I can't think of anybody else that had studied -- the other study that was the same as my job risk study --

Q. Before we get off --

MR. ATKESON: Let him finish.

A. The other study the same as my job risk study, also using a risk scale -- which I believe was an industry risk, not risk to you -- was done by a series of researchers for EPA, and they got a similar result to my job risk study. I used a nonfatal risk; they used a fatality risk. That's one other example.

Q. Did you take part in that study?

A. No.

Q. Anything else out there that corroborates?

A. Well, I have done a handful of my studies. I have this other study there. These are the only ones I can think of right now.

Q. Are you the only scientist that studies

risk perception on smoking?

A. The only economist. The other person who does risk perception in smoking is not an economist, the one I know of, Paul Slovic.

Q. Do you plan on surveying the Washington Medicaid population prior to the trial?

A. I have no plans to do that.

Q. Why not?

A. Nobody has asked for me to do it, and I don't want to. I don't pay for surveys myself.

Q. Wouldn't it make your results more reliable?

A. No, I am testifying based on the broad trends, not, as I indicated, whether the risk perception of lung cancer is .43 or .44. And regarding the overperception issue, we know this can be projected out to Washington reliably.

Q. Let me ask you this. Would it make your results more applicable to the state of Washington Medicaid population if you did that?

A. Well, it's already applicable. That general conclusion that I'm going to be offering is applicable. So I could make more refined judgments if I had more data.

Q. So is the answer to my question yes, it

would be more applicable if you did that?

MR. ATKESON: His answer is what he

just told you.

A. I would be able to answer other questions other than what I am answering, but the questions I'm going to be answering are of sufficient breadth that I don't need more refined data to answer that question.

Q. Let me ask you this. If the cigarette industry turned over all of their information back in the 60's, everything they had, and as a result, hypothetically speaking, as a result they came under FDA jurisdiction and they took off of the market all of the cigarettes that were currently on the market, and in lieu of those cigarettes that were out there, they produced, the tobacco industry produced, a safer cigarette, a cigarette with less carcinogens, less nicotine, less tar, whatever, to the complete exclusion of those other more dangerous cigarettes, now if that would have happened back in the 1960's, tell me how your opinion that people overperceive the risks of smoking would have had any effect on that. Or would it?

A. What? We've just abolished all

cigarettes? Replaced them with --

Q. We haven't --

A. Replaced them with the Premier?

Q. Just a safer cigarette.

A. Let's pretend it's the Premier. How

would -- people would have to have a new risk perception for this cigarette, presumably, so you would want to communicate the risks of this new cigarette.

Q. If that had happened back in the 60's, do you think there would have been more disease or less disease among smokers?

A. Less. If you replace all cigarettes with the Premier, I think there would be less disease.

Q. Do you know what the Gentleman's Agreement was? Have you ever heard that term before?

A. I have heard it, but remind me what the agreement is.

Q. It was an agreement between the Big Five not to do any research or market a safer cigarette. You have seen that before?

A. No.

Q. Is it still your opinion that if the

tobacco industry were to disclose all of the information that they have currently on the risks of cigarettes, that the public perception of the risks would actually be lower?

A. You are saying, is it still my opinion, so you are referring to something else. Do you want to tell me what my other statement was?

Q. Is that your opinion now?
A. My opinion is if you tell people the truth about the risks of tobacco, their risk perception will go down because people overestimate the risk.
Q. I thought a basic tenet of economics was "the more information the better." That doesn't apply here?
A. We are talking about probabilistic information, telling them that the probability of death from cigarettes is X, Y and Z. That's different from the character of the information that is provided. Typically the information that's provided is not what I would call information but forms of persuasion to try and get people to stop smoking or to highlight the risks.
So the intent of the information

transfer is not to lead people to have accurate risk beliefs but rather simply to raise their risk beliefs, and I don't view that as an appropriate role for the government.
Q. What about people out there that underperceive the risks of smoking? How would it affect them if the tobacco industry disclosed everything they know?
A. I'm not sure whether -- it depends on how it's played, but if you get people to have

more accurate risks beliefs, people that overperceive it will lower their risks beliefs; people who underperceive it will raise their risk beliefs. How release of information would affect risk perceptions is not clear to me because I don't know what the information is that you are referring to, how it would be released or what it's going to tell people they don't already know.

Q. That leads to my next question. Have you done a review of the internal documents that the tobacco industry has regarding risks of smoking?

A. No. The -- the only review I have done is review the documents handed to me in

depositions by attorneys against the tobacco industry.

Q. And yet you're confident that if that information which you are not aware of were released to the public, it would still cause the perception to go down?

MR. LEITER: Objection. Argumentative.

A. What I'm saying is that if this information is going to lead people toward more accurate risk judgments, which I assume the Surgeon General has a good idea of what that

would be, if we use that as the reference point, then that would cause risk perceptions to go down.

Q. Well, you consider yourself a scientist; right?

A. Economist. We are social scientists; we are not lab scientists.

Q. Shouldn't you have all of the facts at hand before you make a conclusion?

MR. LEITER: Objection. Argumentative.

A. You can never have all the facts about virtually anything. You always act under

situations of partial information. That's called Bayesian decision-making, which is a lot of what I do.

Q. Well, you are saying people's perception of risks would actually go down if the industry disclosed everything they knew, and you are saying that without knowing what the tobacco industry knows; is that correct?

A. If you read back my answer to the question, you will find that if the release of the information is going to lead the public to have beliefs that parallel those in the Surgeon General's Reports, I have no reason to believe that it would provide different information then that would lower risk beliefs.

Q. What if it did?
A. Did what?
Q. Provide much different information? What if, according to your definition of causation before, what if the information that the industry provided showed a 1.0 relationship between smoking and disease?
A. Then this would have showed in all the studies done by the Surgeon General that track real populations. So if a tobacco industry does

a study with a bunch of mice in a laboratory, that's interesting. But the studies that actually track people I view as more informative with regard to the risks in humans, and that's the kind of information the Surgeon General has been using in their studies. I know of no studies done by the tobacco industry that are comparable.
Q. And you are assuming, I take it, in that answer, that the tobacco industry or the Surgeon General committee that did that report had at its fingertips all of the same information that the tobacco industry had; is that correct?
A. No, what I'm saying is that studies that track people, large-scale population studies of risks to people, are more informative

than beagle or mice studies or rat studies, if you are trying to assess the risks to people.

Q. Let's just limit it for a second to the dangerous elements that may be present in cigarettes. Who is in a better position to know what those may be: the Surgeon General or the tobacco industry?

A. Well, cigarettes are available on the

market. Anybody can take these out and test them. But what we really care about is what the risk consequences of these dangerous elements are, and that you can track through population studies. And the cigarette industry is not best equipped to do that; the federal government is.

Q. The cigarette industry is not the best equipped to determine what is in their cigarettes?

MR. ATKESON: Asked and answered.

A. I could repeat my answer. What you care about is, first of all, the consequences of the cigarettes, and that can best be assessed by tracking a population. Second, to figure out the chemical constituents, anybody can take a cigarette and run tests to figure out what it is.

Q. If the industry came out and said that smoking was addictive, and everybody understood what that meant, addiction was defined, would

that increase or would that lower the risk perception of people regarding smoking?

A. It's a different assumption than risk perception pertaining to mortality. You are talking about addiction.

Q. Let me just --

A. I was in the middle of my answer.

Q. It's a different question, so let me clarify the question. If they came out and said smoking is addictive and they defined addiction, how would that relate to your estimates of the risk perception of smoking?

A. It won't affect it, because you are asking, what are the risks associated with smoking. And we already have a public that already universally believes that smoking is hard to quit. Whether you call it habit-forming or addiction, everybody, virtually everybody, believes those things.

Q. And hard to quit in your mind is the same thing as addiction or addictive?

A. From an economic standpoint it is exactly the same. Now, that's different from how it's defined medically. But from an economist's standpoint, "addictive" and "transactions cost of change" are the same thing.

Q. I'm handing you what's been marked as Exhibit 1403 in the deposition. Can you identify this?

A. This is a Xerox copy of my "Smoking" book.

MR. ATKESON: I think's that's 1403. It should be 1404. Because this is 1404.

MR. GRUENLOH: 1404.

MR. ATKESON: Just so we are clear.

Q. Can you turn to page 7 of that for me and read the second paragraph there?

MR. ATKESON: Aloud?

MR. GRUENLOH: Yes.

A. "The main finding with respect to risk perceptions for lung cancer is that not only is there substantial awareness of the smoking hazards, but overall individuals appear to overestimate the risks as compared with the levels in the scientific evidence. Whereas the best scientific estimates of the lifetime lung cancer risks from smoking range from .05 to .10, individual perceptions of the risk are much greater.

"The entire population assesses this risk at .43, and even current smokers have a substantial risk perception of .37. The fraction of the population underassessing the

risk is less than 10 percent, and the extent of their risk underestimation is comparatively small in magnitude."

Q. Thank you. Where did you get the numbers .05 and .10 from?

A. I provided information on how I did the calculations in one of the footnotes in the book.

Q. Can you describe that for me?

A. I will find the footnote.

Q. By the way, that translates out to a five percent -- between a five percent and ten percent chance of getting lung cancer; correct?

A. That's correct. Footnote 19 on page 84.

Q. Hold on a second. Let me catch up with you.

MR. ATKESON: What do you want him to do?

MR. GRUENLOH: Let me just read it.

A. (continuing) And footnote 20.

Q. Can you nutshell that for me?

A. There are these government estimates of the number of people who get lung cancer divided by the smoking population, to get the

probabilities.

Q. Did you use the Surgeon General's Report to get any of those probabilities?

A. The Department of Health and Human Services is the Surgeon General's Report.

Q. So the answer is yes?

A. Yes.

Q. Why just lung cancer? Why did you ask just about lung cancer?

A. I didn't. This is the Audits & Surveys data.

Q. Do you know why they did?

A. The case that was being litigated was a lung cancer case, but other than that, they didn't tell me. But that's what I surmised. And they indicated that the survey was run in connection with that type of litigation, lung cancer cases.

Q. Can you turn to page 70 of your book for me, please. There's a table at the top there. Can you explain the numbers that are reported in this table for me?

A. Well, in survey year 1985, looking at the evidence in the literature such as the Surgeon General's Report, I calculate the lung

cancer mortality risk to the smoker as ranging

from five percent to ten percent. And using more recent studies in 1991, the range is six percent to 13 percent. And similarly I calculate the mortality risks to the smoker --

Q. Is that 16 percent? Sorry.

A. Six percent to 13 percent.

Q. Okay.

A. Then the other columns present other data for other risks.

Q. What other risks?

A. The total mortality risk to the smoker, the total mortality risk to society.

Q. Can you go through those like you did the last two?

A. Total mortality risk to the smoker, that estimated range is .16 to .32 in 1985. And .18 to .36 in 1991. The total mortality risk to society ranges from .21 to .42 in 1985, to .23 to .46 in 1991.

Q. And these numbers are all from the Surgeon General's Report?

A. No, I just -- I indicated none of these numbers were from the Surgeon General's Report.

Q. But you based them -- they were from

data originally from the Surgeon General's Report?

A. Not all of them, some of them. There

were more recent studies after the Surgeon General's Report that I used, also government studies, government-funded studies, to try and stay up to date. As you notice, my updated estimates are higher. So I wanted to make the estimates as current as possible.

Q. Why didn't you use the higher numbers, the 46 percent there? Why didn't you use that in your study, as opposed to the five to ten percent?

A. Well, because it's a different risk. The risk that the question is about is about lung cancer, and that risk includes total mortality from all causes, not just to the smoker but to everyone else. And you're referring to the upper-bound estimate, where there is a risk range of .23 to .46 even for that risk.

Q. The question could have been asked in those surveys about total mortality as opposed to just lung cancer, couldn't it have?

A. I did that in 1991 and 1997.

Q. And what was your result there? What was the risk perception of the smoker?

A. For the smoking subsample, I will have to dig it out of the text. It may be in here.

1991, for the smoking subsample, .47.

Q. .47?

A. .47. And in 1997, for the smoking subsample, .42.

Q. That's for all diseases?

A. Mortality risk from all diseases.

Q. Did you list the diseases in your question?

A. I listed the following: "Out of one hundred cigarette smokers, how many of them do you think will die from lung cancer, heart disease, throat cancer or any other illness because they smoke cigarettes?"

Q. What is the question immediately preceding that one?

A. I would have to look at the survey.

Q. Let me ask you if -- I believe it was the question on lung cancer. Tell me if I'm wrong or right.

A. Yes, it was the lung cancer question.

Q. Who decided upon the order of those questions? Do you know?

A. This is the way I asked them, building it up in pieces, in North Carolina. So this is just mimicking my approach.

Q. Let me ask you, why didn't you just ask, instead of both of those questions, the lung cancer question and the total mortality

question, why didn't you just ask, out of a hundred people, how many will die as a result of their smoking, or become ill?

A. I wanted to make it more concrete, to actually go over some of the kinds of ways people could die, to sort of bring up in their minds the actuality of different diseases, so that they could think mentally of some of the different causes of death.

Q. You wanted to bring up in their mind lung cancer --

A. -- heart disease, throat cancer, other illnesses, to let them know there were a multiplicity of ways you could die.

Q. Would you consider those the more well-known risks that are associated with smoking?

A. These -- lung cancer and heart disease have been the focus not only of being well known but also believed to be quite big by the people who assess smoking risks. So they are the focus, for example, of the OSHA and EPA analyses of environmental tobacco smoke. These are the key things.

Q. Okay. Do you think that the Washington Medicaid population is the same as the population which was surveyed in the 1985 survey?

A. Well, it's twelve years, 13 years, since then. So times have changed. But the general conclusions seem robust according to time. The conclusions if anything are stronger for the less educated groups.

Q. How might they be different?

A. Well, they have higher risk perceptions.

Q. Let's go back to your book for a second, page 7, again. You list two numbers, 43 percent and 37 percent.

A. I don't see those.

Q. In that second paragraph.

A. Page 70?

MR. ATKESON: Page 7.

Q. Page 7, I'm sorry.

A. All right.

Q. How did you get those numbers?

A. These are the mean lung cancer risk perceptions for the full sample and for the current smoker subsample of the population.

Q. So the mean of the people that were surveyed, their mean response was that 37 out of a hundred people will get lung cancer or 43 -- or 43 out of a hundred will get lung cancer?

A. That's correct.

Q. How many people were surveyed, do you

know, originally, in the first? Let's deal with the '85 survey.

A. I will have to look it up.

Just over 3,000, so over 3100.

Q. Do you know if there was a bigger base that they started from?

A. People that they called and didn't answer?

Q. Right.

A. I'm sure they -- well, I would -- I'm not sure how high their response rate was, but I would -- most telephone surveys, you don't get a

hundred percent answering on the phone.

Q. Is it possible that they captured the views only of those people who had particularly poignant views on the subject?

A. I have no reason to believe that that's the case, because people didn't know why they were answering the phone.

Q. Getting back to the higher risk that's on that same page in that table 4, look at the one -- I think it's --

MR. ATKESON: Page 70?

MR. GRUENLOH: Yes.

A. Okay.

Q. Let me make sure. In the bottom right-hand corner of that table, 23 to 46 percent, can you tell me again what that

represents?

A. The assessed total mortality risk to society, including risks to the smoker, risk to others, fires, fetal deaths, is .23 to .46.

Q. If the question in the survey had been turned in that way, and by "that way," I mean with, "What do you think the risks are of what you just read," do you think the answer would have changed?

A. I think you would get a bigger answer.

Q. How much bigger do you think the answer would be?

A. I don't know.

Q. Did you ever do any sensitivity analysis or anything to find out about that?

A. Never tried.

Q. Why not?

A. I'm interested in private decisions as they affect the individual, so the focus here was on individual risk-taking as opposed to, for example, environmental tobacco smoke, for which, at least at this time, the risk estimates were much flimsier than they are today.

Q. What's a personalized risk assessment?

A. It would be a risk assessment to the person as opposed to a societal risk assessment.

Q. You mean as opposed to a generalized

risk assessment?

A. I don't know what you mean by a generalized risk assessment.

Q. What was the one you just said?

A. I was interested in risk assessment of risks to the individual. So I cared about their risks to themselves as opposed to risks to

others.

Q. And yet you didn't ask about their risks specifically?

MR. ATKESON: Asked and answered.

A. I asked about risks to smokers. I didn't ask about risks to nonsmokers caused by environmental tobacco smoke.

Q. So you haven't asked one person in the Washington Medicaid population about their own risk perception?

MR. ATKESON: Asked and answered.

A. I think my questions do ask about people's own risk perceptions. Whether there is somebody from the Washington Medicaid population in my sample, I don't know.

Q. You are not familiar with the term, "generalized risk assessment"?

A. No. Generalized about what?

Q. Let me define it for you, as I understand it. As I understand it, generalized risk assessment is a person's risk as it relates

to society in general, not specifically to them. Have you heard of that before?

A. I have heard of that concept. I have heard of people testing that.

Q. What have you heard it called, as opposed to generalized risk assessment?

A. I haven't heard that many labels. I have heard of people looking at personal risks or societal risk assessment.

Q. Societal risk assessment is how you would label it?

A. I'm just describing it. I am not inventing a label. So I'm happy to discuss concepts with you, but there's no intellectual content in a label.

Q. Do you know who Martin Fischbein is? Maybe I'm mispronouncing his name.

A. I have heard the name.

Q. Do you agree with his statement that it is the beliefs about the risks to oneself, not generalized notions of risk, that affect people's behavior?

A. This is the risk to oneself, the way I asked it.

Q. Do you think that people's, what I call generalized risk perception, the risk that they apply to society, to other people, is typically

higher or lower than the risk perception that they have personally?

A. It's often statistically insignificant. It's often -- there is often no statistically significant difference.

Q. Don't people think, "It's never going to happen to me"? They don't think that?

A. I certainly think a wealth of economic evidence contradicts that.

Q. Have you heard of the third-person or third-party effect?

A. Yes.

Q. Can you describe that for me?

A. You believe it will affect this other person, the third person, but not yourself. That's the hypothesis.

Q. Do you agree with that hypothesis?

A. It's never been shown to be true for smoking risk questions.

Q. Have you shown it to be untrue? Have you tested for it?

A. I have not personally tested for that, except statistically, so I have not asked direct questions to get at it, but my statistical analysis linking smoking risk perceptions to smoking behavior certainly contradicts that.

Q. Do you know who Michael Schoenbaum is?

A. Yes. I have never met him, but I know the name.

Q. Have you ever served on a peer review panel for any of his work?

A. No, not that I know of.

Q. Would it surprise you to find out that smokers significantly overestimate their life spans?

A. It depends on what information people are given. I have discussed this in the book as well. If you provide people with information regarding normal life expectancy so that you correct for the differences in information different groups have, then you will find, as I have in both 1991 and 1997, that smokers overestimate the life expectancy loss due to smoking. So that would imply that they underestimate how long they'll live.

Q. Well, let me ask you this. If smokers do in fact significantly overestimate their life spans, does it square with the theory we discussed a second ago, the third-party effect?

A. Well, they don't overestimate their life spans if you ask the question in a way that elicits the incremental effect of smoking as

opposed to the additional understanding of normal life expectancy, which Schoenbaum did not correct for.

Q. I'm not asking you whether you believe that they do overestimate or not. I'm asking you, assume that smokers overestimate significantly their life spans.

A. Based on what question? Based on Schoenbaum's?

Q. Sure, based on Schoenbaum's.

A. His question is invalid for the reasons I discussed. His question does not provide people with information regarding normal life expectancy. So his answers compound differences across smokers in their understanding -- differences across smokers and nonsmokers of their understanding of normal life expectancy with people's perceptions of the incremental effect of smoking, and that result was shown before Schoenbaum. It doesn't provide you the information about life expectancy so that people can answer the question sensibly, which is what I have done.

Q. Is it your opinion that smokers underestimate their life spans, then?

A. Yes.

Q. On what do you base that?

A. The 1991 and 1997 survey results.

Q. Can you tell me specifically what in that led you to that opinion?

A. Table 5 -- let's see. No, it's not table 5. Table 8 and table 9. Table 8 is mislabeled. It's really the 1991 data.

Q. We are looking at your book?

A. No, the paper you have here. Table 8 is lifted from the book. So this is the 1991 results from my book. Table 9 are the 1997 results. And the average life expectancy loss people assess is 12.6 years for current smokers, 9.9 years in 1997.

Q. Has this been reported elsewhere, or is this for the first time?

A. I have reported it.

MR. ATKESON: It's in the book.

A. The '91 one is in the book. This is in this paper. It's also in my Duke Law Journal paper that's in press.

MR. ATKESON: And it's also in the survey itself.

Q. Is it out there? Is it available

publicly?

A. You can reconstruct it using the data in the Audits & Surveys data. This is just my tabulation based on the Audits & Surveys data.

Q. Does your opinion that people overperceive the risks of smoking, does that take into account the intensity of one's smoking behavior?

A. This is for the average smoker, so it doesn't distinguish across different categories of smokers. So the question is for one hundred smokers, for an average smoker.

Q. Well, did you define "smoker" anywhere in any of these surveys?

A. No, other than saying -- it would be the wording, "what an average cigarette smoker -- the average male smoker" is. At one point the survey breaks people into categories of current cigarette smoker, former, never smoked cigarettes regularly.

Q. Does that control for intensity of smoking?

A. Well, I'm not making differentiations regarding that.

Q. So the answer is no?

A. I didn't define heavy smoker, light smoker. This would be an average across the entire smoking population.

Q. Tell me again what you believe an average smoker to be.

A. For a person who smokes the average number of cigarettes with the average risk of

cigarettes, whatever that might be.

Q. What is that?

A. The average risk of cigarettes, what I presented in the table, I think it's on page 70.

Q. I'm asking you what the average smoker is.

A. How many cigarettes do they smoke?

Q. How many cigarettes does the average smoker smoke?

A. A pack and a half a day would be my guess.

Q. Where is that in the survey?

A. There is no information like that in the survey.

Q. Why not?

A. This is to elicit -- the purpose of the survey is to elicit average perceptions regarding what an average smoker is. The risk

perception information we have is for an average smoker. If my intent was to elicit what is the risk perceptions for a light cigarette, light tar versus higher tar cigarette, then we would also need for that to be an interesting scientific reference point for what the risk levels are for different kinds of cigarettes. I didn't have that. I was only concerned with the average smoker, so there was no reason for me to

differentiate.

Q. That's kind of quantitative, as opposed to qualitative. When you just say "average smoker," would you define that as qualitative or quantitative?

A. "Average smoker" would be average smoker in terms of the average risk. I'm not sure what your question is. Qualitative would be, is the average smoker happy or not happy. That would be qualitative.

Q. If you asked somebody, "Does smoking cause lung cancer," is that a qualitative question or quantitative question?

A. Nobody really knows what you mean by "cause." That's the problem. So is cause a certainty or is cause a probability? How high

does the probability have to be before it's a cause?

Q. So you can't answer that question?

A. What was the question? I got distracted.

Q. The question is, if a person is asked, "Does smoking cause lung cancer," is that a qualitative question or is it a quantitative question?

A. It's just a bad question. It's an imprecise question.

Q. But which of the two is it?

A. Well, if you interpret it as, "Does smoking having a probability of 1.0 of causing cancer," if that's what you mean by a cause, then that's a quantitative question. If you are asking, is there, you know, some kind of risk link that's imprecisely defined, that would be a qualitative one. So until you tell me what you mean by cause, we can't even put it in a category.

Q. So you wouldn't be able to categorize it?

A. I have already answered it.

Q. You wouldn't be able to categorize it?

MR. ATKESON: Asked and answered.

A. Not until you define what you mean by cause. I'm not going to play the game. You define cause, I will play the quantitative/qualitative -- if cause means to you it has to be 1.0, I will be happy to answer.

Q. Is that what you think this is, a word game with probability and causes? Is it a game?

MR. ATKESON: Argumentative. You don't have to answer that.

Q. Whose game is it? Is it the tobacco industry's or your game?

MR. ATKESON: Why don't you ask a proper question.

Q. Do you think that people overestimate the risks of other diseases just because they do so with lung cancer?

A. It depends on the disease.

Q. Well, let's take birth defects again.

A. I don't know. Birth defects are publicized on cigarette packs. So I would expect there to be some awareness. Whether it's overperceived or not I'm not sure.

Q. Do you know who John Hanson is?

A. Yes.

Q. What's his field?

A. He's a lawyer.

Q. Is he well respected in his field?

A. I'm not going to answer that. I don't know.

Q. In his article, "The Cost of Cigarettes" -- have you read that before?

A. Yes.

Q. -- he made the following statement: "The incentive of manufacturers is not to make their cigarettes safer but to make their cigarettes seem safer."

What did he mean by that; do you know?

A. First of all, I don't know what evidence he has for that claim.

Q. Let me rephrase that question. What do

you understand that to mean?

A. He claims that the incentive of cigarette companies is to make their cigarettes seem as if they pose lower risks than they actually do.

Q. Do you agree with that?

MR. ATKESON: With his understanding of what Hanson said?

Q. Do you understand my question? Do you agree with that statement?

A. I don't -- I disagree because I don't think that's the incentive of cigarette companies.

Q. If all we were concerned about is the perception of the public and not the morality or the conduct of the industry or anything else, isn't that statement correct?

A. In the long run, even if there's no regulatory sanctions, if even if there are no legal sanctions, if the public believes you have deceived them, you are going to get hammered. So my belief is that honesty is generally the best policy.

Q. What do you mean, "you are going to get hammered"?

A. If the public believes they are deceived, they will stop buying your product.

Q. So if the public became aware that they were being deceived by the tobacco industry, assuming that they were, they would stop buying the product?

A. That would certainly hurt you, yes.

Q. Is that what the tobacco industry is

doing now, making a cigarette that seems safer?

A. Not that I know of.

Q. Do you know if they have used their best efforts to produce a safer cigarette?

A. I don't monitor their internal operations.

Q. So if in fact they were deceiving the public, they had all this information that had not been released, you wouldn't know one way or the other, would you?

A. I just know the confidential documents that have been shown to me in depositions, but I don't know what other information they have internally.

Q. In prior depositions you have given the opinion that younger people overestimate the risks of smoking even more than older folks do. Do you recall that?

A. Yes.

Q. Is that still your opinion?

A. Yes.

Q. Can you tell me what you base that on?

A. The 1985 Audits & Surveys results and the 1997 Audits & Surveys results.

Q. Anything else?

A. There's widespread awareness among youth that smoking is either a habit or an addiction. I'm not sure how that compares exactly with adults, but it's almost a hundred percent.

Q. When you say younger, what age groups did you study?

A. 1985 started at age 16. 1997 picks them up at age 18.

Q. What about kids under 16?

A. The habit and addiction results pertain to them. There are other less quantitative questions pertaining to younger age groups in my "Smoking" book, but they are not part of the Audits & Surveys data.

Q. Is it your opinion, then, that a 16-year-old can make an informed decision to smoke?

A. What is -- what do you mean by an informed decision to smoke?

Q. They know all the risks?

A. Well, they overestimate the risks. They overestimate the risk of lung cancer. They overestimate those effects.

Q. When you say "they overestimate the

risks," can you tell me what you mean by that?

A. Their risk perceptions for lung cancer are higher than those for adults.

Q. Do you think a 16-year-old understands all of the implications of getting lung cancer?

A. Well, we know for the 16-to-21 age group, which is as refined as I think we can break it down for the '85 data, that lung cancer risk perceptions diminished their smoking probability by exactly the same amount as for their older counterparts. So there's no statistically significant difference in how lung cancer risk perceptions affect behavior for 16-years-olds as opposed to the general population.

Q. But you think a 16-year-old understands all of the medical care and everything else that goes with getting lung cancer?

A. You don't have to know all the details for it to stop you, for you to know smoking is bad. So you don't have to know precisely every event to know that there's a very adverse outcome that you don't want to happen to you.

Q. So it's your opinion that 16-year-olds understand that there's a very adverse outcome

that could happen to them if they smoked?

A. Yes.

Q. And you base that upon the data that you gathered in the '85 and '97 surveys?

A. The '85 survey -- '97 picks them up at age 18.

Q. On page 120 of your book -- you don't need to look unless you want to -- you compare smoking to driving. I'm sorry. You compare -- right, you compare smoking to driving, as it relates to young kids.

A. Right.

Q. Why didn't you compare it to, say, crack cocaine?

A. I don't have good data on crack cocaine.

Q. Do you think that smoking is comparable to driving?

A. Well, driving imposes more social costs than smoking.

Q. How so?

A. The calculations by Manning et al., the Rand Study, indicated that alcohol use, principally drunk driving, has very harmful social effects, much worse than their estimates

for any of the components related to cigarettes.

Q. You are saying "social effects." Are you making a distinction between social effects and medical costs?

A. No, I'm thinking of harm to others as opposed to private costs to the individual.

Q. Let me ask you, what kills more people in the United States per year: smoking or car accidents?

MR. ATKESON: Let me ask, we are away from 16-years-olds, and you are just in the general population?

Q. General population.

A. Although more people die from smoking, car accidents kill more people involuntarily.

Q. Why do you suppose we have youth access laws if kids overestimate their chances of dying as a result of smoking?

A. I discussed this briefly in the book. We reserve a lot of decisions in society until you are older: the right to vote, the right to drive a car, the right to see R-rated movies. So I would say it's part of that general cluster of concerns. We want to reserve certain important things. You can't get married at age

12, for example.

Q. You said kids can make an informed decision about smoking when they are 16 years

old?

A. What I said is that in my sample, they had accurate risks beliefs, and it affected their risk -- their propensity to smoke the same way.

Q. Is that different than what I said?

A. That may not be everything, but they do seem to understand the costs of smoking as well. So I have seen no documentation of their inability to make decisions at age 16.

Q. What documentation besides the '97 survey data and the '85 survey data have you seen that makes you conclude otherwise?

A. Well, we have the results on the perception of the habit-forming or addictive qualities of cigarettes. And almost universally close to a hundred percent of youth believe that cigarette smoking is either a habit or an addiction, or both.

Q. Why do we have youth access laws if kids can make an informed decision?

MR. ATKESON: Asked and answered.

MR. GRUENLOH: That's a different question.

A. There are certain kinds of important decisions for your life that we reserve until you are older, and that includes going to R-

rated movies, et cetera, along the same lines I just discussed.

Q. As a policy analyst -- I'm asking you to put your policy analyst hat on. Would you opine that kids should be allowed to start smoking when they are 16, based upon the data that you've seen?

A. Well, 16, they are still minors, and there are a lot of decisions that I think you should be accountable to your parents or whoever your guardian is at that time. So I think that would be a household decision, a parental decision. Until recently, most states thought it was okay at age 16 to smoke.

Q. So you would at least go so far as to say that it should be a household decision, as opposed to a decision made by a government?

A. No, I'm saying that I would not turn this decision over entirely to the individual 16-year-old.

Q. Why not, if they make a well-informed decision?

A. Because parents, as long as they are minors, still have a say in how they should run their lives.

Q. Have you ever heard the saying, the invincibility of youth?

A. Well, it's often been denied in recent

research, but yes, people have hypothesized that that's the case.

Q. What does it mean?

A. People who claim that believe that youths think that nothing can possibly hurt them, but this result has been contradicted by recent psychological research with adolescents.

Q. How do you define the term "addiction"?

A. It's a cost of change, so high transactions cost of change. Going further into the addiction model, if you -- the rational addiction model would be if you anticipate that you are going to be addicted to something, then the future consumption of the product should affect your current consumption. You would be forward-looking in your behavior, by that.

Q. It's hard to quit?

A. Costly to change, hard to quit.

Q. But your definition would be costly to change?

A. That's the same thing as hard to quit. So it's a transactions cost associated with changing your behavior.

Q. Have you ever done any economic analysis on what the private costs to smokers are to get rid of their addiction?

A. No, I have done analysis of the private

benefits to smokers of smoking.

Q. But not the costs?

A. We don't really know what those costs are, and we don't know how many people really want to quit.

Q. What are the benefits?

A. People willing to pay more for cigarettes than they are currently charged because they enjoy smoking.

Q. Do you know what the actual definition of addiction is?

A. It's a medical definition, not an economic definition.

Q. Do you know what it is?

A. I have read it. I believe it includes some physical effects. But I leave these matters to doctors. I'm not going to tread on their turf.

Q. Do you know what the tobacco industry's position on addiction is? Do they think it's addictive or not?

A. I don't know. There's been so much debate over what the distinction is between habit-forming and addiction with the different -- different Surgeon Generals had different definitions. I'm not sure what their official position is. I don't think many people believe

it's not hard to quit. The head of R. J. Reynolds quit smoking, and I believe he came out and said it was hard to quit.

Q. And you think "hard to quit" is the same as addiction; is that right?

A. From an economic standpoint it is, with the additional proviso regarding the anticipation of future consumption.

Q. Assume with me for a moment that a particular respondent, let's say in the 1997 survey, Mr. X, he did not believe that cigarettes were addictive. How would that --

how might that affect his risk perception of cigarettes?

MR. ATKESON: A smoker or nonsmoker?

MR. GRUENLOH: A smoker.

A. Well, he is asking about the average -- you are asking about the average risk to a cigarette smoker, which is undefined, but you still know some people quit smoking, some people don't, so it's over a population mix. So it would be the average over the population mix of smokers.

Q. Maybe I'm just not understanding your response. How does it affect Mr. X's decision, his risk perception?

A. It doesn't. He just needs to know what

the pattern of smoking is in society. That's the reference point.

Q. What if he didn't know that cigarettes are hard to quit?

A. It doesn't matter. All he needs to know is that people out there smoke, they tend to smoke, some people stop smoking, some don't stop smoking. You don't know if it was hard for people to quit or not.

Q. You don't have to know if the people that -- it's all right if he thought, Mr. X thought, people that quit smoking did so just because they chose to, and it was easy for them?

A. Same thing. If you had asked me, "What's the average risk posed by Chevrolets," whether buying a different model car was costly or not, so -- so if the transactions cost of buying a Chevrolet, once you had already bought one, if they were high, it doesn't affect my risk assessment of people who drive Chevrolets. You look at the population of drivers of Chevrolets and assess their risk. So I don't see why it matters.

Q. What if Mr. X were 16 and he planned on quitting before his 17th birthday, and he had no idea that smoking was addictive? Might that affect his risk perception?

A. Well, the question is about -- you are asking about his risk perception. In terms of the answer to the question, no, because the question is about the life expectancy of an average male smoker.

Q. Do you think that someone who doesn't know that smoking is addictive is making an

efficient choice when they choose to smoke?

A. Well, I'm not sure who these people are, because everybody, virtually everybody, believes smoking is either a habit or an addiction.

Q. The tobacco industry doesn't believe that.

A. They don't believe it's a habit?

Q. What is their position on addiction? Do you know?

MR. ATKESON: He didn't know. Asked and answered.

Q. I just told you.

A. My comment was regarding habit.

Q. What's the difference between habit-forming and addictive?

A. There's a medical definition that makes a distinction based on physical effects. But from an economic standpoint there are costs of change. In the case of Becker's addiction model there's anticipation of future consumption,

which would affect your present consumption.

Q. Do you think the public makes any distinction between hard to quit, habit-forming and addiction? Do you think it's all the same

in their mind?

A. I think when you mention addiction, they start conjuring images of heroin addicts. But I think that the public could not give you precise definitions of these different terms.

Q. Assume with me for a moment that the tobacco industry denies that cigarettes are addictive. Why do they do that? Why do they quibble, or why do they make a distinction about that definition, when under your theory, if they came out with all of the information, it would lower people's risk perception?

MR. ATKESON: Objection. Calls for speculation.

A. I don't know what the cigarette industry's position is on addiction.

Q. Doctor, that's why I just told you.

A. Well, if people --

MR. ATKESON: Do you want him to guess why they have that position? If your description is --

Q. I said, assume that their position is that cigarettes are not addictive, and I want

you to tell me why they have taken that particular stance.

MR. ATKESON: If he knows.

Q. If you know.

A. I don't know why they have done this.

MR. GRUENLOH: Why don't we take about five minutes.

(Recess taken.)

Q. What is cognitive denial?

A. I'm not sure. I have heard of cognitive dissonance.

Q. What's that?

A. The hypothetical situation which could arise, for example, would be a worker would try and put out of his mind certain risks that might befall him as part of his job, as a way to get through the risk.

Q. So for instance, that worker would say, "It's not going to happen to me"?

A. Or deny the risk altogether, just deny that there is even a risk.

Q. But he could just say, "That's not going to happen to me"?

A. That's not the usual version of it.

Q. The usual version is --

A. Put it out of your mind.
Q. Denying that the risk exists?
A. Just try and put it out of your mind.
Q. How does that relate to the third-party effect that we were talking about earlier? Same thing?
A. One is putting it out of your mind, one is that it's not happening to me, it's happening to other people, as you have defined it.
Q. Are the two theories consistent?
A. Well, they are different theories about different mechanisms.
Q. Can they both be true without one being incorrect?
A. They could both be true, one could be true, both could be false.
Q. Did you correct for cognitive dissonance in any of the survey work that you did?
A. Well, I tested whether smokers' risk beliefs actually did affect their behavior, which, it would not if there were cognitive dissonance, and you can reject the hypothesis that there is no significant relationship between smoking risk beliefs and smoking

behavior. Also, there is no apparent two-directional relationship where smoking in turn affects your risk beliefs.

Q. Where was that done?

A. In my "Smoking" book.

Q. Can you tell me just a chapter?

A. The "Smoking Probability" chapter.

Q. Chapter 5?

MR. ATKESON: It should be.

A. Chapter 5, and probably also the appendix.

Q. And we discussed earlier that these questions -- let me just ask it. These questions were asked about people's perception of a hundred smokers, not their perception of their own risk; correct?

A. The wording was, "Out of one hundred smokers, how many of them do you think will get" this particular ailment, lung cancer or death. And as I have indicated before, I found that questions such as these are in fact a reasonable way to elicit individual risk beliefs.

Q. What is hypothetical bias?

A. Well, it depends on the context. In contingent valuation surveys, there would be a

hypothetical bias in terms of being willing to pay more money for a hypothetical commodity,

using hypothetical interview money, than there would be using real money to pay for real commodities.

Q. What would be a hypothetical bias as it relates to this survey?

MR. ATKESON: The 1997 survey?

Q. The '97 survey.

A. I don't see any hypothetical biases.

Q. So you obviously didn't correct for it?

A. There's nothing to correct for. My questions are real ways to get at real risk perceptions.

Q. So you do not agree that hypothetical bias is present in the 1997 survey?

A. That's what I just said.

Q. Would information on how respondents perceived other risks be helpful at all?

A. No. What we care about is the risks associated with your particular decision, smoking versus no smoking, what's the incremental risk. For smoking in your life, what's the incremental risk. And to answer that question, you don't need information on other

risks.

Q. Let's take Mr. X again. If Mr. X, a survey respondent, a smoker, if you found out that he believed that he had a 50 percent chance

of dying in a car accident, a 40 percent chance of dying of AIDS, and a 40 percent chance of dying of smoking, would that tell you anything about his risk perception?

A. It tells me this person is going to die very soon. But if you look at objective risk perception studies, the risk the people assess with smoking is so much higher than the risks that they assess with respect to automobile risks, that the kind of example you gave wouldn't even come up.

Q. So it's your opinion that people's perception is that risks as it relates to smoking are much higher than anything else?

A. These probabilities are higher than any other probabilities I have seen assessed for any other risk.

Q. Where can you find those other probabilities reported?

A. Well, I have got a Rand Study with several hundred people just in Arizona, with

risks ranging from heart disease, lung cancer, whatever, a whole series of causes of death. And these studies have been in the literature for approximately 25 years, on mortality risk perception.

Q. And those include, say, for instance, an individual's risk perception of dying in an

automobile accident?

A. They include society. Basically they ask people, how many people in the United States are going to die of these different things. So it's a risk assessment for different outcomes.

Q. So in your opinion, it's not important, or you don't need to know how Mr. X in a survey perceived the risk of other things as compared to his risk of smoking?

A. That's correct.

Q. You don't need to know the relative risk?

A. I just said that, yes.

Q. That's another way of asking the question. Is the answer still yes?

A. Yes.

Q. Would it cast any doubt on your conclusion, or would you want to do any

follow-up work if you found that smokers overperceived the risk of everything, not just smoking?

A. Well, we know that that's not true from the job-safety area, because we've got information on smoking risk perception and risk-money tradeoffs. I have already written about that and shown that's not the case.

Q. If you found that to be the case, would

that cast any doubt on your conclusions?

A. I have got -- let me review the bidding. I have solid empirical evidence supporting this view. What you have got is a conjecture by John Hanson without any empirical evidence on something else. So in other words, in terms of what weight to place on it, I have the empirical evidence that backs me up and is statistically significant.

Q. All I have asked you to do is make an assumption.

A. I can't make it because it's contradicted by the studies I have done for job risk and workers.

Q. So you are refusing to make that assumption?

A. I am saying the assumption is false.

Q. You have that personal opinion of the assumption?

A. It's ample empirical evidence.

Q. You have your own empirical evidence of that assumption, but can you answer the question with that assumption?

A. Try posing the question again. I don't remember what the question is. You have asked about six of them.

Q. Assume that you found that smokers overperceive the risks of everything, not just

smoking. Tell me, would that cast any doubt on your conclusions, or would you want to look at your conclusions again?

A. It wouldn't cast doubt on them, because you care about the incremental effect of the risk for a particular activity, and it affects their behavior, which I have documented. So that there's no reason to believe that they are dismissing these risk perceptions for any reason. And there's no evidence to even provide -- the evidence we have got contradicts that assumption.

Q. What if they believed, "I'm going to

die of something, so it might as well be smoking"?

A. I know of no studies that have shown people have risk beliefs of that magnitude, you know, in terms of an immediate risk of death.

Q. I would like to move on to your opinion concerning what I call the death benefit, or early death theory. Do you have another name for that?

MR. ATKESON: The lifetime analysis.

Q. Is that what you would prefer to use?

A. I called it lifetime analysis because I don't view it as a death credit. I just view it as a sensible way to do the analysis.

Q. When you say lifetime analysis, are you also including excise tax in that?

A. No.

Q. So if we talk about lifetime analysis, we are only talking about the death credit? I just want to make sure we are talking about the same thing.

A. We are talking about, how does the length of smokers' lives affect how you would calculate the financial cost imposed on the state.

Q. Okay. I think I can deal with that. Can you explain the theory to me?

A. The theory, which I have regarded as my general approach that I have taken, is the question you want to answer is, "But for smoking, what would the cost to the states be?" And for the purposes of doing this calculation, it's only appropriate to charge smokers for the costs incurred and give them credit for the monies they have saved during the period they are alive.

So it's not appropriate to charge them for costs that would have been incurred had they had the same life expectancy as nonsmokers, for example.

Q. Have you applied that theory to the State of Washington's case?

A. I would apply it to any case.

Q. Have you?

A. I have done no separate analysis for this case. I have done analyses for all 50 states, but I'm not testifying on damages except in terms of the concept.

Q. So tell me, what do you base your opinion on when you opine about this theory?

A. I view that as the only sensible, sound economic approach. If you are going to look at the costs associated with an activity, you can't invent costs that never occurred, which is what I was referring to in terms of, you have to stop charging smokers for costs after they are dead, because there are no costs being generated. So that certainly has to be included.

The second aspect, if you are looking at cost, you want to look at net costs to the state. So you can't -- let's say there's two different accounts: there's Medicaid part A and Medicaid part B. If smokers raise costs in Medicaid part A but lower them in part B, it's inappropriate to just charge them for the cost that went up in part A. You want to give them credit for what they saved you in part B, to get the net cost figure.

Q. So what do you base your opinion on?

Is that just your own logic?

A. It's -- this is basic sound economics for how you would want to do the accounting to properly account for the net social costs. So this is not just my own logic. This is how you would account for externalities in any context,

such as pollution or anything else. You want the net costs.

Q. Is this lawsuit about social costs?

A. It's about financial costs to the State of Washington, so it's not full social costs.

Q. What are the externalities that are associated with tobacco?

MR. ATKESON: In what context? Individual, state, societal?

Q. Why don't you define "externality" for me first.

A. That would be a cost or an effect on others that's not internalized in the private decision.

Q. Then would you tell me what the externalities that are associated with tobacco are, and I don't want to make any distinctions. Tell me what all of them are.

A. I'm not sure I know all of them, but the principal ones would be Social Security costs and retirement costs and pension costs would be less, if smokers die sooner and do not

collect benefits. Nursing home costs would be less, to the extent that smokers spend less time in nursing homes. If medical care costs go up

or fires go up because of smokers, these would be cost increases.

Environmental tobacco smoke would be an external cost. The taxes smokers contribute to fund retirement plans would be an external benefit. I think those are the principal components I have analyzed.

Q. And you included medical costs in that; correct?

A. Yes.

Q. As a cost?

A. Medical comes out as a cost. Nursing home, which I view as medical, is a negative. So one is positive; one is a cost savings.

Q. Well, we'll get to that in a second. How do you do a proper economic analysis in terms of cost?

A. Of what?

Q. Of anything. When you do a cost-benefit analysis, don't you have to look at all costs and all of the benefits?

A. Ideally you want to get a handle on the big cost components, so if there are little ones, it doesn't really matter. You want -- you

never pick up everything.

Q. Ideally you would pick up everything, wouldn't you?

A. If the cost of policy analysis were free and if information acquisition is free, you would pick up everything, but we don't live in that world.

Q. Did you do that in your analysis? Did you pick up all of them?

A. I don't live in a world of free information, so I did the best I could with the available data and the resources I had.

Q. So the answer is --

A. No, no analysis ever includes everything, usually.

Q. Let me make sure I have got all the so-called benefits of tobacco that you looked at. You looked at nursing home, retirement, pension plans, Social Security, taxes. Anything else?

A. I think those are the main cost components.

Q. Those are the main benefit components, alleged benefits?

A. Right.

Q. What are the costs that you have looked

at? Medicaid, I assume?

A. Medicare and Medicaid, both.

Q. Both of them together or separately?

A. I think I did under and -- above and below 65. I have done it by state where I have broken out Medicaid.

Q. Anything else?

A. Hospital costs, state hospital costs, other state costs.

Q. Private costs?

A. So I have done private externalities too, not just externalities to the states.

Q. I'm sorry. So you did include private costs?

A. Yes, I have done a total societal cost, all externalities, as well as broken it -- doing it for federal and state governments.

Q. So you include loss of life? You put a number for loss of life?

A. For environmental tobacco smoke, I did.

Q. What about just regular smoking?

A. That's a private cost. That's an individual cost that's internalized by the smoker. That's not an externality.

Q. So you didn't put in a value in this

for the loss of life for a smoker?

A. It would be incorrect to do that. It would not be appropriate.

Q. What about the loss of consortium?

A. I didn't put a value on that either.

Q. What about the loss of a family income?

A. That's not in there either.

Q. What about the loss of state tax revenue because the person may have died early?

A. I put the loss contributions to retirement and pension plans in there. I didn't include lost income taxes, nor did I include lost services the person would have consumed.

Q. What about the costs to the state due to tobacco-related fires? Did you include that as one of the costs?

A. I did fires in general. I think when you break it down into a state component that's proportional, it doesn't really matter very much.

Q. What about administrative costs to the state, extra hospital beds, extra personnel to take care of lung cancer patients?

A. If there's an additional administrative cost that's not picked up in the medical cost,

that's not picked up.

Q. What about cost paid by the state to clean up cigarette butts?

A. No.

Q. Let's go back a second. You said you didn't include loss of life by the smoker; correct?

A. That's correct.

Q. Can you tell me again why you didn't do that?

A. It's a private cost to the individual, and it's not part of the calculation of financial externalities.

Q. Why isn't that an externality?

A. Because it's an individual issue. It's, loss of life is the value to the individual. By definition, individual costs and benefits are not externalities. Externalities are effects on others.

Q. Back to your lifetime analysis, that's a longitudinal approach; correct? Or is it cross-sectional?

A. It's a lifetime analysis.

Q. What's the difference between a lifetime analysis and a longitudinal analysis?

A. Longitudinal makes assumptions about the data base, that you actually track people over time. So mine is bridged over the Manning study, some of which were just cross-sectional as opposed to longitudinal studies, but they

estimated over the lifetime the pattern of people's expenditures.

Q. Under your lifetime approach, it's better if somebody, a smoker, dies of lung cancer quickly as opposed to lingering for a couple of years, incurring extra medical bills; is that correct?

MR. ATKESON: Can you say what you mean by "better"?

MR. GRUENLOH: Better economically for the state.

A. Well, I wouldn't put a value judgment on the word "better," which implies that there's something good about this whole venture that you are doing in terms of calculating costs to the state. From the standpoint of the state's costs, if there's no other contribution the person is going to make, and you are simply ill and you are definitely going to die, the longer you live, the more it's going to cost the

state.

Q. So it's better economically for the state if the person dies more quickly as opposed to lingering and incurring more hospital bills?

A. Once again, you are attaching a value judgment to this.

Q. I'll just say "better economically."

A. Well, but better from a standpoint of

social welfare? You are attaching a value judgment to the accounting exercise the state has constructed to try and recoup costs.

Q. Under your theory, your lifetime analysis, the state saves money if a smoker dies quickly of a smoking-related disease as opposed to lingering and incurring more medical bills; is that correct?

A. This is not under a theory. This is reality. If you are looking at the cost paid by the state, the longer the smoker stays alive and you are paying those costs, and if there is nothing else going in from the smoker, no matter what theory you use, the cost to the state will be higher the longer the smoker incurs these costs. This is a fact.

Q. Well, how does that reality, if that's

what you want to call it, how does that reality square with a proper theory of deterrence?

A. What -- since when are we even in a world of deterrence? What we are talking about here is the efforts by the state to recoup costs. If you are trying to calculate costs, you want to do that properly, no matter what your theory is. So if you care about deterrence, you care about actual costs. So what if what you are trying to do is financial

costs? If that's what you want to do, you have to measure them correctly.

Q. What if you are trying to deter improper conduct?

A. What's the harm from the improper conduct? If the only harm is a financial cost, then the financial cost is the penalty. You don't invent some other cost.

Q. Let me ask you this. Should cigarette manufacturers be encouraged or maybe even subsidized to produce cigarettes that kill people, as opposed to just cause illness?

A. Well, you are assuming that social policy should be based on the principle underlying these state lawsuits. And as I have

pointed out elsewhere, that -- there's more going on with smoking decisions than just the financial interest of the state. That should not be our paramount concern, whether the State of Washington makes money off this or not.

Q. When you did your lifetime analysis, you looked at both Medicaid and Medicare costs; correct?

A. That's correct.

Q. Is it your understanding that this lawsuit includes Medicare costs?

A. I believe it just included Medicaid costs, but I'm not working on the damages issue.

Q. So you don't believe that your lifetime analysis, then, can be applied to the Washington state case?

A. No, I didn't say that. The principle can apply. What I'm saying is that I'm not preparing damages numbers for the State of Washington.

Q. But --

A. That's not my role in the case.

Q. But you have not --

MR. ATKESON: Let me just make this clear. Our designation of him on this issue is

simply to say that the proper method for measuring these damages is a lifetime analysis. He is not saying that, you know, what he did in the National Bureau of Economic Research article or other articles is what should be followed for determining Washington's; he's just saying it's the right approach.

MR. GRUENLOH: Okay. Thank you.

Q. So you didn't adjust your lifetime analysis for this case; correct?

A. I have done nothing on the damages side for this case.

Q. And yet you are going to opine that that theory can properly be applied to this case?

A. The theory is how you would procedurally account for the social costs of cigarette smoking. I have done that nationally, I have done it for the federal government, I have done it for all the states.

Q. Well, the costs that you include in that, that's part of the theory, isn't it?

A. I don't know what this lawsuit picks up. I did cost for a set of costs that I designated for my article, but that was before

this lawsuit ever even happened, so I can't anticipate what costs you are going to claim.

MR. ATKESON: I would also point out, in his article, where he goes through all 50 states, it's only on Medicaid.

MR. GRUENLOH: In which article?

MR. ATKESON: You have a draft of it in what we produced. It's coming out in the Journal of Law and Economics.

Q. What study or principle of economics do you rely upon or use in your determination that the value of human life should not be included as an externality?

A. The definition of what an externality is. And since I'm the one who developed value of life numbers throughout the -- used throughout the federal government, I know what they are used for, so I at least know what my

own numbers are.

Q. Let me ask you just quickly one question about this. On discount rates, would it be better for the tobacco industry -- and I know I'm using the word "better" again, but financially better -- if in doing this lifetime analysis you used a higher or lower discount

rate?

MR. ATKESON: Well, can you explain what outcome you are looking for? That's an objection.

MR. GRUENLOH: Okay. Thanks.

A. In terms of the costs, the costs tend to be more immediate than the benefits, so a higher discount rate would place a greater weight on the immediate costs; a lower discount rate would place a lower weight on these costs. Or higher weight on these -- lower relative weight on these costs.

Q. And you used three percent; correct?

A. Yes, I show the results for zero, three and five.

Q. Do you show all the results for five?

A. As many as I was able to get away with, with the people determining the length of the article.

Q. I am handing you what's been marked as

Exhibit 1404, but I think it's 1405, to your deposition. Can you --

A. It's the article I wrote, "Cigarette Taxation and the Social Consequences of Smoking."

Q. Can you turn to page 75 of that for me?

A. They are cut off.

Q. I am looking for table 4, if you can find that.

A. Table 4.

Q. On table 4 you have got numbers here reported for the discount rate, and I'm not worried about the numbers with the tar adjustment. Let's say just the first three columns. They show the effect of three discount rates, zero, three and five percent; correct?

A. Right.

Q. The bottom there, where you have total net costs, for zero percent the number comes out negative; correct?

A. Yes.

Q. For three percent the number comes out negative; correct?

A. Yes.

Q. For five percent the number comes out positive?

A. That's correct.

Q. Can you explain that?

A. Well, in the first two sets of estimates, cigarettes on balance save society

money, excluding excise taxes; and at five percent there's a cost of cigarettes of 27 cents a pack, excluding excise taxes.

Q. And you used three percent in your findings? You didn't use five percent; correct?

A. I show the results for all, but I place the greatest weight on three percent.

Q. Turn to page 94. Actually, I apologize. It's a couple before that. I'm looking at table 11. Where you've got your findings, you only report the values based on a three percent discount rate; correct?

A. That's all the editor was willing to publish, because it was too unwieldy.

Q. Did you do it for five?

A. I did it for all three.

Q. What was the result with five percent?

A. I honestly don't remember the results.

Q. Did it cost the state or was there a savings?

A. Well, it would cost the state already, without counting environmental tobacco smoke, so if you count it, too --

Q. I'm asking, exactly as you did it in this article.

MR. ATKESON: He's answering.

Q. With five percent, was there a savings to the state?

A. Are you going to let me answer?

Q. Sure. Please do.

A. At five percent, even not counting environmental tobacco smoke, there's costs to society. These are not costs to the state. These are costs to society. If you add in environmental tobacco smoke, the only change in table 11 versus the other one is going to be an additional cost figure. So that's also going to be an additional cost. Neither of these things include excise taxes, and none of these calculations are for the state. They are for the whole society.

Q. I understand that, but would it come out negative or positive?

A. For what? The state?

Q. The same -- for the state.

A. I haven't done this for the state with the externalities and everything.

Q. Doctor, you just told me you ran it for all the numbers.

A. This is a different article. Yes.

These numbers are not for the state. These are for society. This article has nothing to do with individual state calculations. That's a different paper.

Q. Why did you choose those particular rates, zero, three and five?

A. Because the real rate of return is in that range. In fact, I think it's below three percent. One to three percent is where the real rate of return has been in the United States.

Q. You based a lot of -- at least I would say you took those rates from Manning's work; correct: the zero, three and five?

A. No, I didn't have to take those from Manning. I came up with my own rates.

Q. Turn to page 99 for me if you would. There's a discussion there at the top right-hand corner, and you briefly discuss the rates that Manning used. You wrote he used zero percent and five percent. Didn't he also use ten percent?

A. I don't know what else he used, but this sentence refers not to me taking his rates for guidance, but me taking his results for those particular rates when I'm reporting

Manning's numbers for zero percent and five

percent. That's what that statement is alluding to.

Q. So you didn't start with those rates and then make a calculation based upon those?

A. I don't understand where we're going.

MR. ATKESON: Let me see if I can help. He, Manning, reported numbers for each of the seven entries at those interest rates. Kip had to update them. He took the numbers that Manning came up with at zero and five; he had to come up with his own numbers for three percent to update the numbers.

MR. YOUNG: We know what he did.

MR. ATKESON: There seems to be some --

MR. GRUENLOH: I don't understand what that paragraph says, and I can't find anybody who does.

THE WITNESS: I have been trying to explain it.

Q. One more time.

A. What I did is, when I present Manning's numbers, he reported numbers for zero percent and five percent, so I used those numbers. He

did not report results for three percent. So what this paragraph does is explain how I calculate the results that I call the Manning results for three percent. So I have a separate

table of Manning results. That's all it means. It doesn't mean I took as my inspiration for picking zero, three and five percent as my discount rate -- I didn't get any inspiration from Manning on that.

MR. GRUENLOH: Okay. Just give me about five minutes to look through what I've got left, and we'll finish up.

(Recess taken.)

Q. Have you done any studies or analysis on cigarette taxes or product demand other than what's here? By what's here, I mean what's been turned over to us.

A. For the state of Washington?

Q. In general.

A. I have articles on cigarette taxes, that deal with cigarette taxes.

Q. Can you tell me what they are so I can locate them?

A. They are among the articles we checked, so there's one in the -- in the Tax Policy Encyclopedia.

Q. I thought you testified earlier that, other than what's on your CV, you had done an analysis for the tobacco -- the lawyers for the

tobacco industry on taxes and the demand of the product.

A. No, I just did a --

MR. LEITER: Are you referring to his Brookings article?

MR. GRUENLOH: Maybe that was it.

MR. YOUNG: He testified he had done an analysis for the lawyers on the cigarette tax.

THE WITNESS: No, I have never done it. I have done one on the cost of the national accord, the present value of those costs, which are comparable to an excise tax.

Q. Who pays excise taxes?

A. Well, all taxes on all products are shared between the producer and the consumer, so there's some tax shifting that goes on across both the parties.

Q. Whose pocket does the money come out

of?

A. It would be the consumer.

Q. So the tobacco industry didn't pay any of the excise taxes in Washington, did they? And I'm asking, actually pay?

A. Well, from an economic standpoint it doesn't matter who actually pays; it matters that there's a tax. But the taxes are paid by consumers.

Q. But my question is, who actually paid?
A. Well --
Q. Whose money -- where did the money come from?
A. You can look at that one of two ways. I walk into a store and pay for cigarettes, and that's, you know, including the tax. This is money that could have gone back to the tobacco company, but by state law it goes to the convenience stores and goes to the state treasury. So the consumer is the last person to touch the money, but the tobacco company is the person that didn't get the money.
Q. So is it your opinion that the tobacco industry paid for excise taxes in the state of Washington?

A. No, my opinion is that, as in all contexts, the burden of taxes is shared between producers and consumers, so producers bear part of the tax, principally because a higher tax lowers the amount of cigarettes that they sell in the state of Washington.
Q. Is that because cigarettes are price-sensitive to an increase in taxes?
A. The price sensitivity leads to the decreased demand, yes.
Q. And again, going back to the early

death -- your lifetime analysis, for a second -- you have never done a lifetime analysis specifically on the Washington Medicaid population, have you?

A. No.

Q. Do you plan to do one?

A. No.

Q. Do you know what the result would be?

A. I have generalized my analysis for Medicaid for the state of Washington using a variety of bridge factors, but that's different than the kind of extensive analysis that is probably being undertaken in this case.

Q. So the answer is no?

A. I forget the question, but --

Q. The question is, do you know what the result would be?

A. I don't know exactly what the result would be.

Q. And anything that you would present as far as a result on that would be a guess, then; correct?

A. No, it's not a guess; it's an estimate.

Q. An estimate based on what?

A. Based on the generalization of my national numbers to the state using a variety of bridge factors.

Q. But you haven't done the actual

analysis; correct?

A. I haven't done a separate analysis.

Q. For the state of Washington?

A. For the state of Washington, other than this bridge to the state.

MR. ATKESON: Just so there's no misunderstanding here, you have an article of his that has an analysis of each of the 50 states; included in that is the state of Washington. Okay? But he's not going to be -- we are not offering him as an expert to say that

the number he came to there is the right number for the state of Washington. But he's done that analysis, and that's what he's talking about when he talks about his bridge factors.

Q. What is the bridge you are talking about?

A. These are basically rough proportionality factors that I use to extrapolate the national analysis to the state. So, for example, if the nursing home utilization rate in the state of Washington was twice as great, I would double the nursing home rate. If the medical price level in the state of Washington was twice as great, I would double medical costs. So I used adjustment factors such as that.

Q. Do you believe that your work on excise taxes, on national excise taxes, can be applied to the Medicaid population here in this case -- I'm sorry -- on your lifetime analysis, can be applied to the Medicaid population in this case?

A. This contains -- the conceptual framework certainly is applicable.

Q. Do you think you would get a reliable result?

A. I'm just talking about the broad framework you would use. I'm not going to be framing every recalculation that they should do to calculate damages.

Q. Look at -- I'm looking for your cigarette tax article, Exhibit 1405. It's in section 6 on page -- I'll get the page number for you. It's page 72.

MR. ATKESON: Is it "Insurance Externalities of Smoking"?

MR. GRUENLOH: "Insurance Externalities of Smoking." That's what I've got. The page numbers are cut off.

MR. ATKESON: That's okay.

Q. Under section 6, the "Insurance Externalities of Smoking," can you read the second sentence there for me?

A. "States such as Mississippi and Florida are initiating lawsuits in an attempt to recoup

state Medicare payments."

Q. Is it your understanding that those states were attempting to recoup Medicare?

A. No, Medicaid.

Q. Was it your understanding with respect to the State of Washington that it was

attempting to recoup Medicare payments?

A. Medicaid.

Q. Was it your understanding at the time that you wrote this that the states were attempting to recoup Medicare payments?

A. I believe it was Medicaid. This was a typo or whatever, a misstatement.

Q. Look on that same page about halfway down, three-quarters of the way down on the same page, next paragraph, the sentence that starts with "moreover. " Can you read that, please?

A. I have no idea where we are.

Q. Under section 6,"Insurance Externalities of Smoking." Second paragraph, the middle paragraph, the sentence that starts with "moreover."

A. "Moreover, when one is assessing these externalities, it is certainly not appropriate to tally only the potential adverse consequences of smoking, such as the effects on Medicare or health insurance costs, and to neglect

systematically the estimated cost savings to society."

Q. By the inflection in your voice, I assume by "health insurance costs" you meant

Medicare there. Is that what you are referring to?

A. It includes private health insurance costs, too.

Q. But again, you used the term "Medicare"?

A. I used it intentionally. That's where it belongs.

Q. But the one up there you think was a typo?

A. The earlier one, it was a misstatement or a typo.

Q. On page 52 of that article, you refer to tobacco as a sin tax?

A. Some people have called them that.

Q. Can you tell me what you mean by that?

A. It may be against certain people's religion to smoke. They may view it as a religious issue.

Q. Is that it?

A. That's it. Or people may demonize smoking in certain ways. So it's behavior they don't do that's bad for others to do, so they designate it as sinful.

25 Q. Is that the popular understanding in

1 the literature, or is that just your
2 understanding?
3 MR. ATKESON: Of the term "sin tax"?
4 A. That's how I understand it. I'm not --
5 I have no reason to believe that I am out of
6 step with popular opinion on this.
7 Q. Are there other reasons in the public
8 -- in the public finance literature, given to
9 tax goods like this other than as the sin tax?
10 A. I have not seen many public finance
11 discussions other than my own in terms of being
12 a comprehensive discussion, so I don't think it
13 shows up that often in textbooks. But in terms
14 of generic aspects for why you would want to tax
15 any commodity, if there are costs to society or
16 if people are making inefficient decisions for
17 themselves, taxes can appropriately align your
18 incentive to take corrective actions, and there
19 is well-established literature on that.
20 Q. Are you familiar with the Ramsey rule?
21 A. I teach Ramsey pricing.
22 Q. Can you tell me what the Ramsey rule
23 is?
24 A. It links how you divide fixed costs
25 depending on the demand elasticity for different

markets.

Q. I'm handing you what has been marked as Exhibit 1406 to the deposition. Can you identify that?

A. This is a list of the cigarette taxes by the year for the state of Washington, as well as tobacco taxes of other kinds.

Q. Are you basing some opinion that you are going to present in this case on that piece of paper?

A. Yes.

Q. And what opinion is that?

A. Column one provides information on the cigarette taxes by year. And I will be relying on this information as a measure of cigarette excise taxes.

Q. And where did you get this information?

A. This was provided to me by the attorneys.

Q. Did you make any independent determination of whether those numbers were accurate?

A. I did not inspect the raw data, but I did check a number of the statistics with the data published in the Tobacco Institute's "The

Tax Burden on Tobacco." And at least through the first few digits, the numbers seemed to line up. Some of them lined up exactly. So there were some minor differences but no substantial ones.

Q. Was the publication that you used to check the numbers, the Tobacco Institute's "Tax Burden on Tobacco"?

A. I would not so much describe it as a check, but just to see if the numbers were in line with other published statistics.

Q. Are you assuming in your analysis here, in your opinion, that all of the funds represented here, all of the taxes are being earmarked for Medicaid funds spent by the state of Washington?

A. No. I'm just assuming they go into the state of Washington treasury.

Q. Do you think all of these taxes were paid by smokers who were on Medicaid?

A. No.

MR. ATKESON: Let me just -- I want to make sure. In one of his previous answers he said he was only relying on the first column, and you have been asking about all the columns.

I don't want to shut you off with your questioning, but that may shorten it.

Q. The cigarette tax in the first column, excise taxes, that's the only one you are relying upon?

A. That's correct.

Q. Let me rephrase my last two questions, then, and just make them specific. As to that first column, are you assuming that all dollars in that first column were earmarked for Medicaid in the state of Washington?

A. I don't know how they earmarked them. I'm assuming they went into the treasury.

Q. So you are not assuming they have all been earmarked as Medicaid funds?

A. They can call them whatever they want.

Q. What do you call them?

A. I just call them net -- excise taxes reaped by the state of Washington.

Q. Are you assuming that all of the people that paid these taxes in the first column here were Medicaid recipients in the state of the Washington?

A. No.

Q. Tell me what your opinion is going to

be. Is it that these are taxes that are paid and that's it? Or will you opine that the tobacco industry should receive some credit for these taxes? What in fact is your opinion?

A. First of all, my opinion will be these

are the taxes. That's part one. Second, my opinion is that if you are trying to assess the cost to the state of Washington, you want to assess the net costs, including what you take in through excise taxes, as well as what you may pay out through other programs. So it's the net total of these costs that's the appropriate measure of damages.

Q. Earlier when you said that you were not going to offer an opinion on damages at all, was that relating only to your lifetime analysis, and not excise taxes?

A. I'm not constructing a damages estimate that you would subtract or net out from excise taxes, so I don't even have that information. If you present me with that information based on what -- the evidence presented at trial -- I would then compare the two and see whether cigarettes are paying their own way.

Q. Will you opine that these taxes as set

forth in this exhibit should be offset against whatever the state claims as damages?

A. Yes.

MR. LEITER: Referring to the excise tax column; right?

MR. GRUENLOH: Right.

A. (continuing) Yes.

MR. GRUENLOH: And that's under your representation that the rest of this information is not going to be used?

MR. ATKESON: That's correct. I mean by Doctor Viscusi. Let me just say I don't know anything about any other expert in Washington. But what Doctor Viscusi is going to testify to just involves these excise taxes, and he's going to say that these excise tax numbers should be used as an offset against whatever the damages are.

And again, I don't know the specific years that Washington is suing for, but that may also affect which of these years he talks about in his column.

Q. So this is just a general analysis you have done? You have not tailored this to the case that the State of Washington has brought?

A. These are tailored, these State of Washington excise tax numbers. When I get the numbers at trial for both the defense as well as for the plaintiff regarding the damages, I could say, given these excise taxes, what would happen to each of these damages assessments.

MR. ATKESON: He may be asked on the stand by us, could he total the excise taxes between two different years, and it will come off this table. But that will depend on what

evidence comes into trial. It will all be out of this first column.

Q. The reason I ask, you start here in 1955. Are you of the understanding that the State of Washington is claiming damages for the year 1955?

A. No, I think my understanding is that 1970 is where I would be starting.

Q. So why did you report information from 1955 to 1969?

A. This is the table as it was given to me, so --

Q. Given to you by whom?

A. The lawyers. I did not prepare this table.

Q. The lawyers prepared this table?

MR. LEITER: Let's be clear, because this is all in the record. The table was prepared by Kovarik and Kuhn, who have been listed as witnesses in this case. They prepared the table. That's been disclosed to the state. They provided it to counsel; counsel provided it to Doctor Viscusi. But the counsel did not prepare the table.

Q. You didn't have any part in preparing this table?

A. None whatsoever.

Q. Are these nominal dollars or are you going to inflate them in any way?

A. They are nominal dollars. How we handle inflation would depend on what the specific rules are in the State of Washington. If the court rules that we are supposed to update things for inflation, and if they gave me a price index to update things, I will use it. But I have no plans to update this for inflation at this time.

Q. You will be relying upon the court to tell you, and you don't have a rate of your own?

A. Whatever the rules are in Washington.

I don't know if there are any rulings applying. But right now I have no plans.

MR. LEITER: Just so we are all clear -- I don't know if you folks are involved day to day in the case -- there is a motion pending before the court on the appropriateness of using a discount rate in Doctor Harris's calculations, and presumably we will get a ruling on that motion which will provide some guidance to both sides.

Q. Is there some rate which you believe to be the proper rate here?

A. Of general inflation?

Q. Yes.

A. The general inflation would be the CPI,

is probably the best estimate of the general inflation rate.

Q. What's that right now?

A. It's low. Two percent, somewhere in that range, three percent, two to three percent.

Q. Is that the rate that you would apply to these numbers if the court asked you to come up with a number?

A. It depends on whether the State of

Washington mandates that a specific price index series be used, so it could be the CPI, the GDP deflator. There's a lot of --

Q. I'm not asking what the rules require. I'm asking you what you would apply.

A. For the general benefit to the State of Washington, I would use the CPI.

Q. So around two percent?

A. It varies by year. We have some real big heavy hitters around 1980, so we have double digit inflation for some of these years.

Q. Is there anything else that you would do to adjust these numbers to present value other than applying that rate for inflation?

MR. ATKESON: Or what the court tells him. I assume that's a predicate of part of your question.

A. The rate of inflation will put it in today's purchasing power. If the court rules that it's also appropriate to give the state of Washington credit for interest they would have made on it, I will follow whatever guidelines they have for that.

Q. That was a poorly worded question. I apologize. Let's get rid of what the court

decides. I'm asking you your opinion as to the proper rate to be applied. You have told me the CPI. In your opinion, notwithstanding anything the court would do, would you do anything else to bring these numbers to present value?

A. It depends on what your objective is. Typically in economic damages cases, I take past losses and apply them to present value, only correcting for prices to put it in today's purchasing power. If I want to give investor -- investment interest they could have earned -- you would use interest rates.

Q. Which is the appropriate way to do here?

A. A lot depends on what the state is trying to achieve or what you are trying to compensate the cigarette industry for. So the value of the money that was paid in 1970 is certainly greater in today's money than 35 million dollars, and if you had that 35 million

dollars to invest in a riskless rate of return, it would have been worth more. If you had that 35 million dollars in purchasing power, it would be worth more. So they are answering different questions.

Q. If you're going to attempt to do an offset calculation with these numbers, shouldn't you be using only those numbers that have been earmarked or used for Medicaid?

A. No. Let's say we live in -- imagine two different scenarios. Scenario one, the state says, "I am going to call these Medicaid cigarette taxes." Then I do the offset, presumably. Scenario two, "I am going to call these something different. I'm going to call these highway taxes." I will put them in the highway trust fund. It doesn't matter what you call them or what account you put them in once the money arrives.

The key thing is this money came from cigarettes, came to the state treasury, and how the state chose to dispose of this money after it got the money doesn't even matter. So let's say in 1997 the total cost of Medicaid to the State of Washington was only one million dollars. You certainly wouldn't take 257 million dollars and put it in the Medicaid

program. That wouldn't make any sense.

So from my standpoint the key thing is that this is a tax on cigarettes, and that's

all that matters. How you designate it, how you label it, is irrelevant.

Q. And anyone, in doing that offset, you are going to be offsetting only that which the state has claimed in their damages; correct? For instance, if the state's damage claim is only based upon monies paid out in the Medicaid program, that's all you are going to be doing the offset against; correct?

MR. ATKESON: Objection. Are you asking, are we going to be asking for a refund?

Q. I'm asking if you are doing an offset based upon what the state is claiming.

A. I'm assuming the state is going to claim the net financial cost. I'll subtract the offset from that. If the offset is above that amount, then the cigarette industry owes the state nothing.

Q. What is the net financial cost? Can you define that for me?

A. The net financial cost is the excise taxes minus the absolute cost of cigarettes, reversing the signs, because the excise tax is positive. So you want to net out the excise tax from your cost figure.

Q. But when you said net financial cost, what is your understanding of what's going to be included in the net financial cost?

A. As I indicated earlier, I don't know the entire scope of the claim. I assume Medicaid is involved. Whatever financial costs the state wants to try and seek, I assume that they are including them in the claim. Once you get all these costs together, you then give the cigarette industry credit for what they have already paid, and you figure out what the difference is.

Q. What percentage of these excise taxes has been earmarked for Medicaid in the state of Washington; do you know?

MR. ATKESON: Asked and answered.

A. I don't know that, and I don't think it matters.

Q. Let me ask you to turn to page 95 of -- I believe it's in this one -- page 95 of your taxation article, 1405. Under the appendix, you have the following sentence: "In doing this they created a nonsmoking --

A. Where? Page 95?

Q. In the appendix, in the first

paragraph. "In doing this, they created a nonsmoking smoker," in quotes, "stylized individual for use in their analysis." What's a nonsmoking smoker?

A. That would be an individual with the demographic profile of a smoker who didn't smoke.

Q. Can you explain generally how you did that?

A. I didn't do it; they did it.

Q. How did they do it?

A. So you would want to take the age, race, educational level and other attributes of a smoker, turning off the smoking variable, then analyze what effect it had on whatever you were interested in.

Q. Did you use this approach or adopt this approach?

A. I adopted their limits, which are based on that approach.

Q. Did you find that approach a reliable way of doing it?

A. I think that that's a reasonable way to do it, yes.

Q. A scientifically valid way of doing it?

A. Yes.

Q. Do you think that using this nonsmoking smoker methodology yielded an accurate result?

A. I know of no bias in it. I don't know what the true result is. And as I indicated four or five hours ago, with better data you can always get more accurate results.

Q. With more data, you can always get accurate results, or just better?

A. More and better data are both good. More data is always better than less. Better data is always better than worse data.

(Recess taken.)

Q. Who is a non -- what is the nonsmoking smoker? Whose analysis was that?

A. Manning and colleagues.

Q. As a policy analyst, you have to factor in all of the potential ramifications of your policy; isn't that correct?

A. The important costs and benefits, yes.

Q. Not just the costs and benefits, but all the ramifications, isn't that correct? Not only the economic costs, but the social

ramifications?

A. I count social things as economic. I don't draw a distinction.

Q. Have you done that with respect to your opinion that children overperceive the risk of smoking?

A. This is not a social benefit-cost analysis. My opinion is focusing solely on risk perception, and I'm only focusing on the factual evidence based on the surveys.

Q. But you have opined that children overperceive the risks of smoking?

A. I haven't opined that. I have given survey evidence or presented survey evidence on that issue. That's not a hypothesis.

Q. So that's not your opinion?

A. It's a conclusion based on empirical work, but it's not an opinion in the sense of, you know, do I like chocolate, which would be strictly an opinion.

Q. What about with respect to your opinion that the tobacco industry would decrease the perception of risk if they disclosed all of their information? Have you looked at all of the social ramifications that may be present

there?

A. Well, first of all, my opinion was that if people had accurate knowledge, people would have lower perceptions of the risk. And from the economic standpoint, you improve social welfare if people have more accurate risk

beliefs to base their decisions on.

Q. So you are assuming if the tobacco industry did disclose all of their information, that would then give consumers an accurate picture of risk?

A. No, I'm just saying if consumers had full information, complete information, that they would have lower risk perceptions than they do now.

Q. Because they don't have accurate information now?

A. Well, they live in a very strong antismoking environment. That's not the same as providing information, and the result is that they overperceive the risks.

Q. So they don't have accurate information now?

A. They have information as well as persuasion and a lot of antismoking crusading

efforts that are going to affect their risk perceptions. So it's not simply reading an article about what the Surgeon General said that's going to affect their risk beliefs.

Q. Is it your opinion that if the tobacco industry disclosed all of the information that they may have to the public, that consumers would then have more accurate information than

they do now?

A. I'm certainly of the opinion that consumers could not process all of the information that the tobacco industry has. I don't believe the consumers can process all the information that's in any given Surgeon General's report. So I think inundating consumers with files from the tobacco industry is certainly not going to foster accurate risk perceptions.

Q. What about with respect to your opinion that the state saves money as a result of the early death of smokers, your lifetime analysis? Have you looked at all of the ramifications, the potential ramifications of that policy or that opinion?

A. Give me some.

Q. Why don't you give me some?

MR. ATKESON: This isn't going to get very far.

A. I don't think the state should be filing these lawsuits at all, so I think you are starting in the wrong place with me.

Q. You don't think there are any ramifications of that policy?

MR. ATKESON: What policy?

A. I don't this --

Q. The lifetime analysis.

A. I am opining that the lifetime analysis is the proper approach in the case. The main one is that you are calculating costs correctly; that's the main ramification.

MR. ATKESON: He -- this is opining on whether or not the state should encourage or discourage the sale of cigarettes?

A. (continuing) I am opining that the state should do the calculations honestly and accurately. That's my only concern.

Q. Have you factored in how that might affect the deterrence factor, let's say not only in the cigarette industry, but manufacturers all over, regarding their conduct? Have you

factored that in?

MR. ATKESON: Factored it into whether or not the state could honestly account for costs? That's what he is referring to. You're not telling us what you are referring to.

Q. The conduct of other manufacturers, your lifetime analysis here regarding cigarettes could have an effect upon them, couldn't it?

A. Assessing costs for past conduct generally won't have an effect on future conduct, because it's the incentives for future behavior that affect future conduct. These are

penalties on past actions, so these are like lump sum taxes.

Q. So other manufacturers wouldn't look at it and say, "Well, they got away with it, so can't we?" It doesn't work that way?

A. You are saying people will anticipate the spread of these lawsuits to other products?

Q. No, I'm just asking you a question. Could other manufacturers develop that policy, based upon what's going on here, your analysis? The policy of, "They got away with it, so can we"?

A. Nobody is getting away with anything. All I'm saying is when you do the cost calculations, do them honestly and correctly. If your position is that you should lie when you do the calculations and do them incorrectly because of some higher good, I think that's wrong. I favor a complete, accurate and honest accounting and let the chips fall where they may, but don't lie about what the numbers are because you think you are advancing a social objective or some legal objective. Tell the truth.

MR. GRUENLOH: I think that's it.

(Whereupon the deposition was concluded at 4:04 p.m.)

CERTIFICATE

I, W. KIP VISCUSI, do hereby certify that I have read the foregoing transcript of my testimony, and further certify that said transcript is a true and accurate record of said testimony.

Dated at _____,
this _____ day of _____,
1998.

_____
W. KIP VISCUSI

Read and subscribed to before me
this _____ day of _____,
1998.

_____
Notary Public

My Commission expires:

CERTIFICATE

Commonwealth of Massachusetts

SUFFOLK, ss.

I, Kathleen L. McCarthy, Registered Professional Reporter, and Notary Public in and for the Commonwealth of Massachusetts, do hereby certify:

That W. KIP VISCUSI, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that such deposition is a true record of the testimony given by the said witness.

IN WITNESS WHEREOF, I have hereunto set my hand and notarial seal this 31st day of August, 1998.

KATHLEEN L. McCARTHY
Notary Public

My commission expires
on November 6, 1998

ERRATA SHEET

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